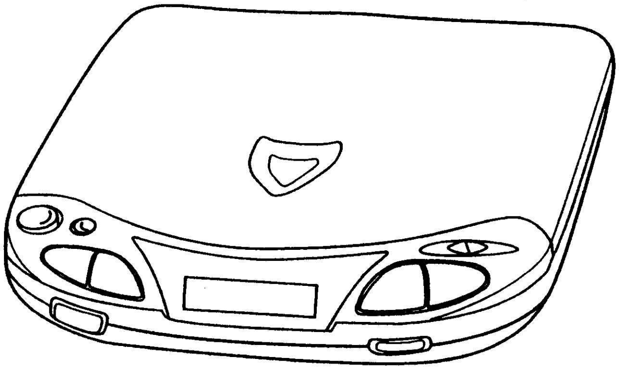
SANYO

FILE NO.

Service Manual

Portable Compact Disc Player

CDP-355 (XE)
CDP-455 (UK)



PRODUCT CODE No.
142 629 01 (CDP-355)
142 634 02 (CDP-455)

Specifications

(CD Player Section)

Frequency Responce . .	20 - 20,000 Hz
Wow & Flutter	Below measurable limits
Sampling Frequency . .	44.1 kHz
D/A Converter	1-bit
Error Correction Method	CIRC
Pick-up	Optical 3-beam Semi-conductor laser (790 nm wavelength)
Laser output	Continuous wave max. 0.5 mW

Specifications subject to change without notice.

(General)

Maximum Output (Stereo headphone) . . .	10 mW + 10 mW
Power Supply	
AC Adaptor	AC : 230 V, 50 Hz
DC	3 V : Using two " **R6** or **HP7** " batteries 3 V : Using the rechargeable nickel-cadmium battery (NBP-50 or NBP-50A) 12V : Using the cigarette lighter adaptor
Dimensions	Approx. 128.5 (W) x 28 (H) x 142 (D) mm
Weight	Approx. 238 g (Without batteries, main unit only)

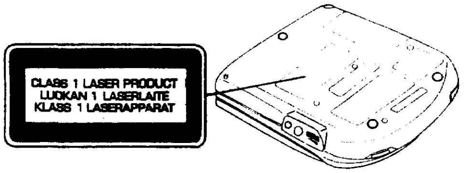
REFERENCE No. SM580684

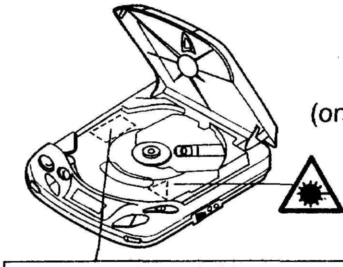
LASER BEAM SAFETY PRECAUTIONS

- Pick-up that emits a laser beam is used in this CD player.

CAUTION :
USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE

LASER OUTPUT .... 0.5 mW Max. (CW)
WAVELENGTH .... 790 nm





(only XE)

CAUTION – INVISIBLE LASER RADIATION
WHEN OPEN AND INTERLOCKS DEFEATED.
AVOID EXPOSURE TO BEAM.

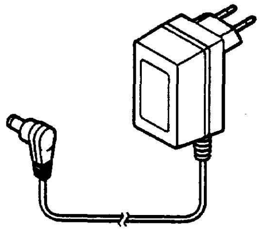
ADVARSEL – USYNLIG LASER STRÅLING VED ÅBNING,
NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION,
UNDGÅ UDSÆTTELSE FOR STRÅLING.

VARNING – OSYNLIG LASER STRÅLNING NÄR
DENNA DEL ÄR ÖPPNAD OCH SPÄRR ÄR URKOPPLAD.
STRÅLEN ÄR FARLIG.

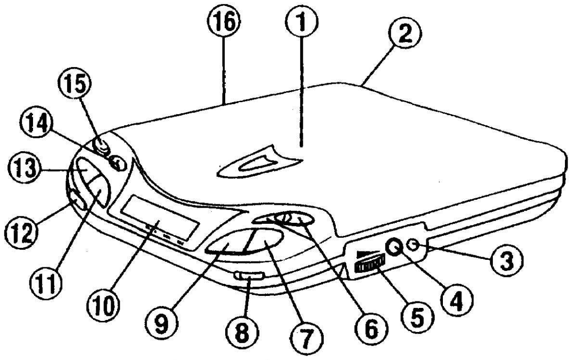
VORSICHT – UNSICHTBARE LASERSTRAHLUNG TRITT AUS,
WENN DECKEL GEÖFFNET UND WENN SICHERHEITSVERRIEGELUNG
ÜBERBRÜCKT IST. NICHT, DEM STRAHL AUSSETZEN

VARO I– AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA
NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.

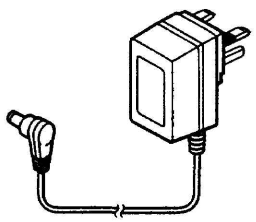
NOTES (ACCESSORIES & CONNECTION)



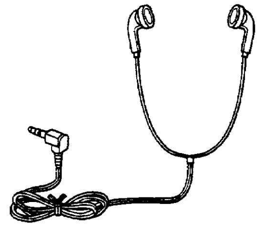
AC adaptor
Part No. 645 011 8678 (XE)



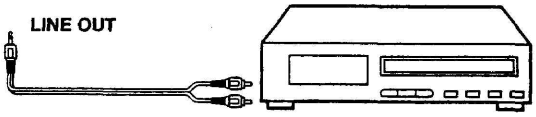
1. Disc Compartment
2. EXT DC 6V Jack
3. LINE OUT Jack
4. PHONES Jack
5. VOLUME Control
6. ⏮ F BACK/F FWD ⏭ Buttons
7. Play/Pause Button (▶/❚❚)
8. Sound Equalization System Switch (S·E·S)
9. Stop Button (■)
10. Display
11. ANTI SHOCK Button
12. HOLD Switch
13. P. MODE Button
14. SET/REMAIN Button
15. OPEN Button
16. Battery Compartment (bottom)



AC adaptor
Part No. 645 011 8685 (UK)

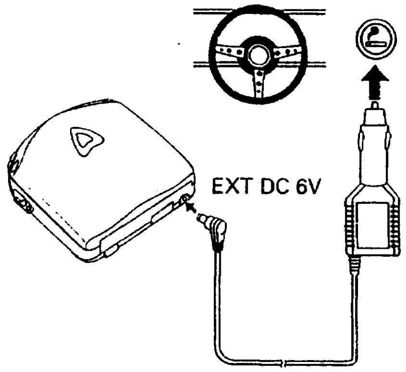


Headphones
Part No. 614 252 7764

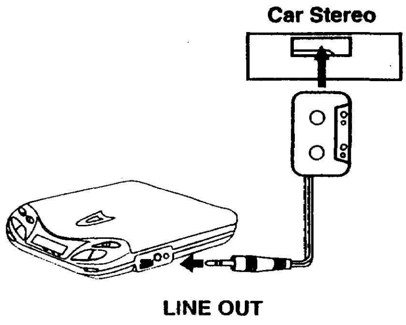


Patch cable
Part No. 645 017 8832

- ACCESSORIES OPTION (only CDP-455)



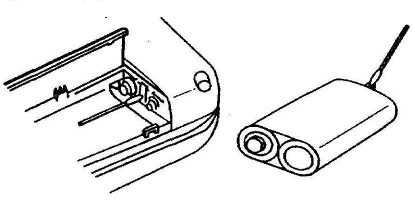
Cigarette lighter adaptor
(DC-DC Convertor)
Part No. 645 017 6098



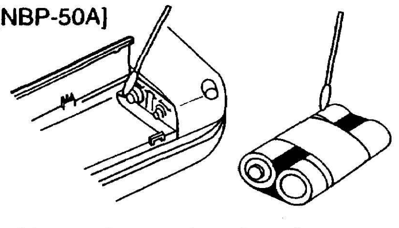
Car cassette adaptor
Part No. 645 017 6104

Rechargeable nickel-cadminium battery

[NBP-50]



[NBP-50A]



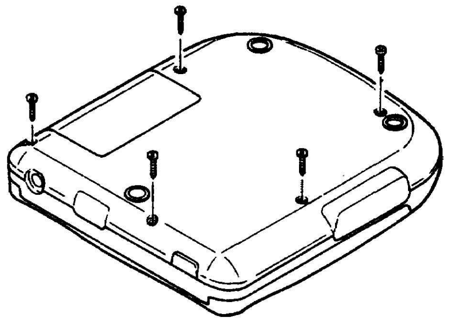
- Always keep the charging terminal clean.

REMOVAL AND INSTALLATION

- Disconnect the AC adaptor's plug.
- Remove the batteries.
- All wiring should be returned to the original position after work is completed.
- First have ready many the new FIXERS (614 129 4971) for replacement.

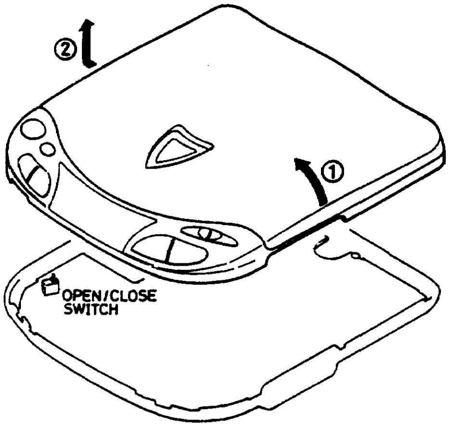
a. CABINET, BOTTOM

(1) Remove the 5 rear cabinet mounting screws. (①)



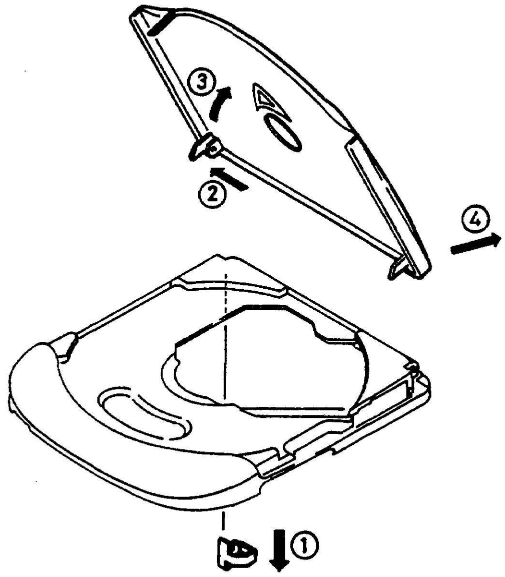
b. CABINET

(1) Remove the top cabinet.

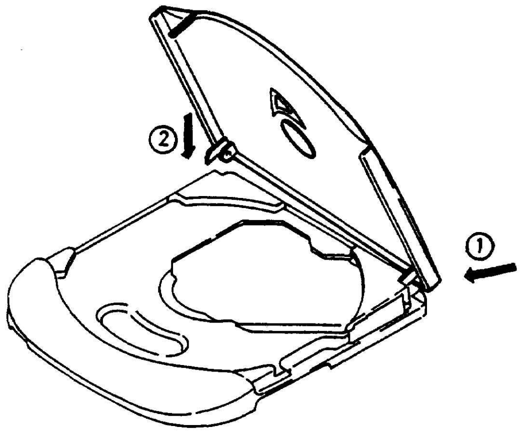

②
①
OPEN/CLOSE SWITCH

c. CD LID

(a) REMOVAL

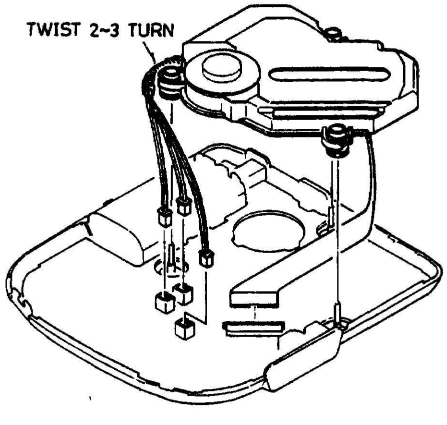


(b) INSTALLATION

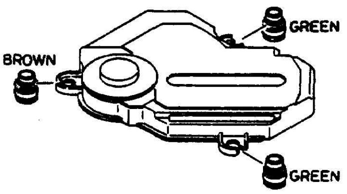


d. CD MECHANISM

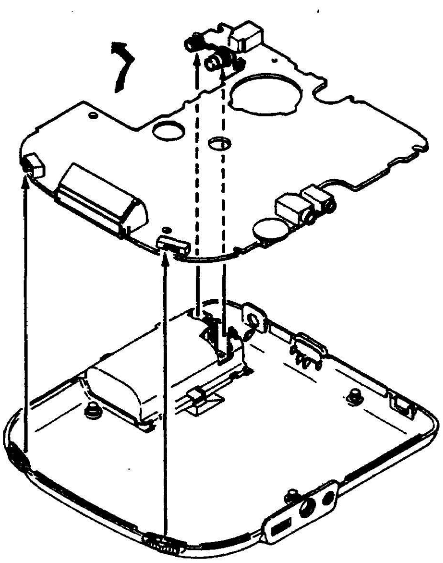
(a) CD CONNECTORS


TWIST 2~3 TURN

(b) CD MECHANISM SPACERS

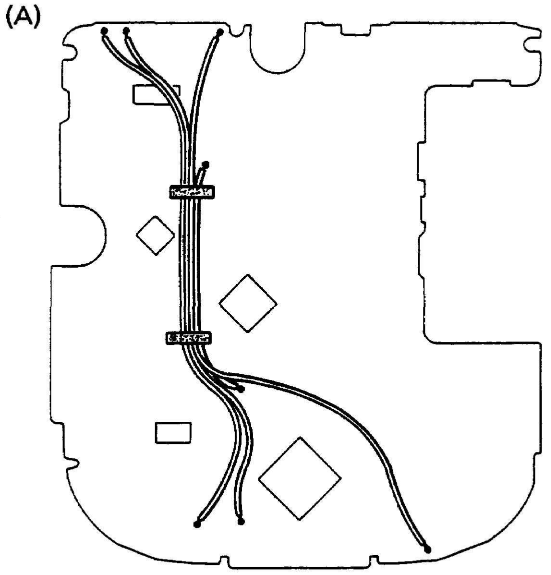

GREEN
BROWN
GREEN

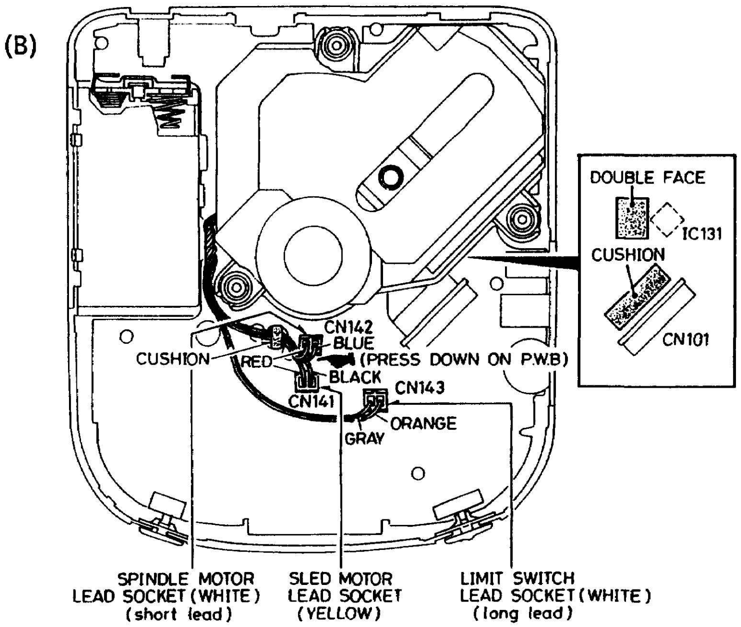
e. CD P.W.BOARD



REMOVAL AND INSTALLATION

f. WIRING LAYOUT

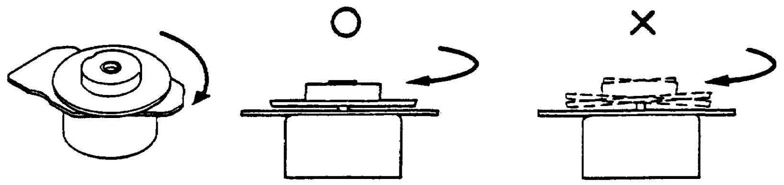


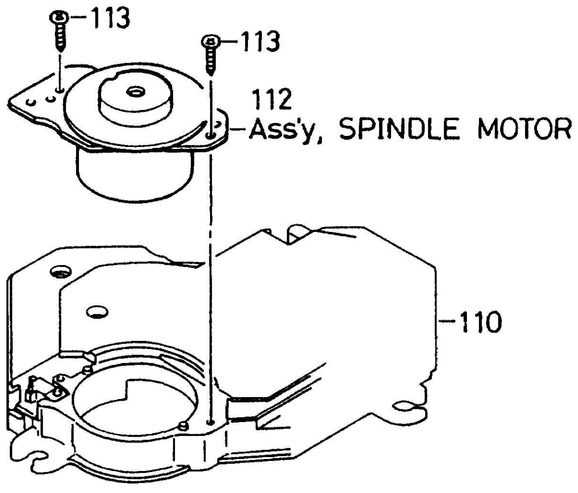

(B)
DOUBLE FACE
IC131
CUSHION
CN101
CN142
BLUE
CUSHION
RED
(PRESS DOWN ON P.W.B)
BLACK
CN141
CN143
ORANGE
GRAY
SPINDLE MOTOR
LEAD SOCKET (WHITE)
(short lead)
SLED MOTOR
LEAD SOCKET
(YELLOW)
LIMIT SWITCH
LEAD SOCKET (WHITE)
(long lead)

CD MECHANISM ADJUSTMENTS

a. DISASSEMBLY OF THE CD PLAYER MECHANISM

(a) Replacement of the spindle motor assembly




113
113
112
Ass'y, SPINDLE MOTOR
110

(b) Replacement of the pick-up

(1) Remove the pick-up rail mounting screw. (①)

(2) Replacement of the pick-up. (②)

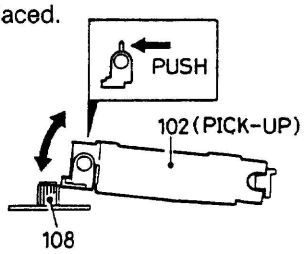
(3) Insert the pick-up rail (105) into the base chassis. (③)

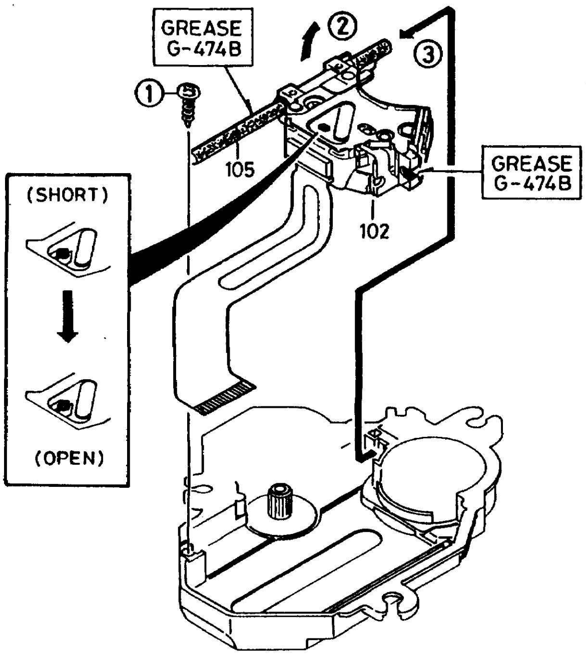
(4) The pick-up rails have been installed, first wipe the tips of the rail with alcohol.

(5) After the pick-up has been replaced, apply grease (**FLOIL G-474B**) to the rail.

(6) The pick-up Flexible P.W.Board pattern is **"shorted"**, as shown in the figure, so that the new pick-up will not be susceptible to the effects of static.

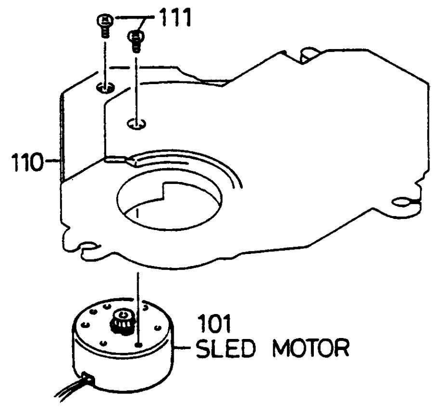
(7) Set the pattern to **"open"** after the pick-up has been replaced.


PUSH
102 (PICK-UP)
108


GREASE
G-474B
②
③
①
105
GREASE
G-474B
102
(SHORT)
(OPEN)

CD MECHANISM ADJUSTMENTS

(c) Sled motor replacement


111
110
101
SLED MOTOR

BE SURE, AT THIS TIME, NOT TO TOUCH ANY OTHER PART.

c. CHECKING THE CD MECHANISM

(a) Checking the operation of the CD mechanism

(1) Disconnect the sled motor socket from the printed-circuit board.

(2) Apply a voltage of DC **0.7 V** to the sled motor's terminal.

(3) Measure the current during sled motor operation.

- The direction of movement of the pick-up (outer groove or inner groove) can changed by changing the battery polarity.

(4) The current during sled motor operation varies according to the positional relationship of gears (107 and 108).

(5) If the current exceeds **20 - 50 mA** , remove the gear (107) and gear (108).

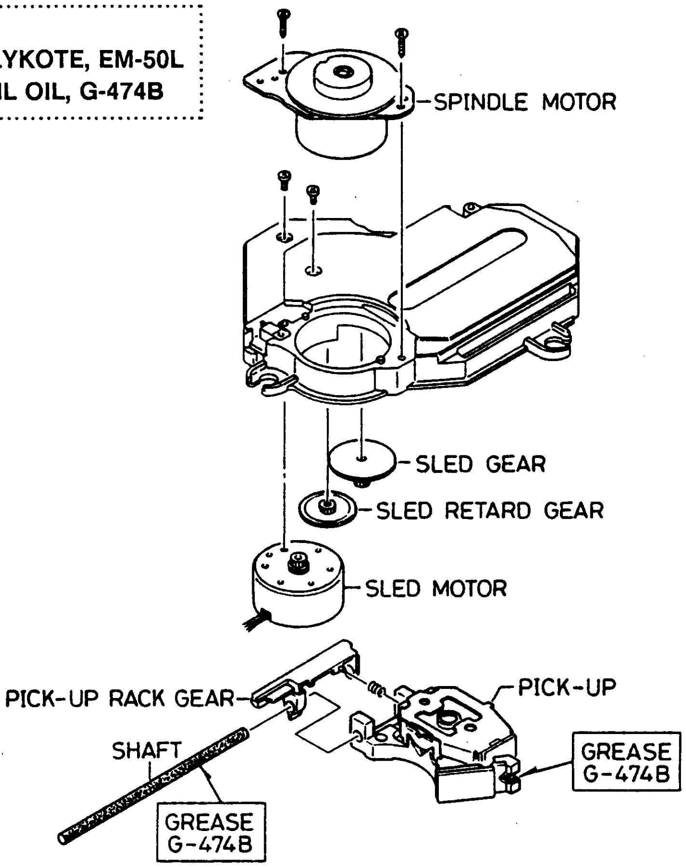
(6) Apply a small amount of a **FLOIL (G-474B)** bonding materials to the chassis shafts.

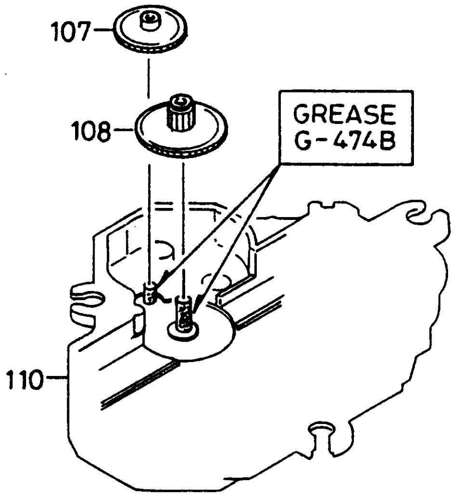
(7) Install the gears as shown in the illustration.

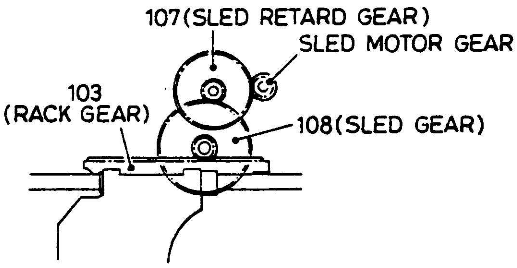
Direction of pick-up movement	Sled motor current
Outer groove	20 - 50 mA
Inner groove	20 - 50 mA

b. REPLACEMENT AND LUBRICATION OF THE CD MECHANISM

Note :
EM-50L MOLYKOTE, EM-50L
G-474B FLOIL OIL, G-474B

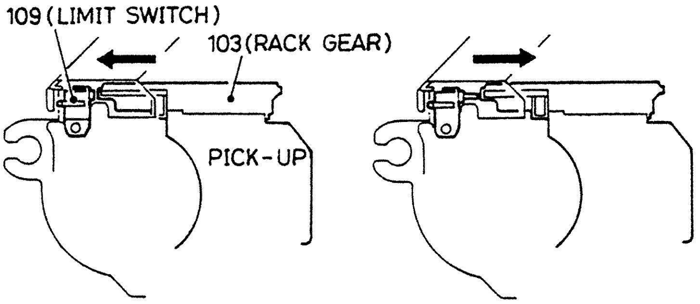

SPINDLE MOTOR
SLED GEAR
SLED RETARD GEAR
SLED MOTOR
PICK-UP RACK GEAR
PICK-UP
SHAFT
GREASE G-474B
GREASE G-474B


107
108
GREASE G-474B
110


107(SLED RETARD GEAR)
SLED MOTOR GEAR
103 (RACK GEAR)
108(SLED GEAR)

CD MECHANISM ADJUSTMENTS

(b) Resetting the pick-up to the home position


109 (LIMIT SWITCH)
103 (RACK GEAR)
PICK-UP

(1) The LIMIT switch is switched ON by the projection of the rack gear secured to the returned pick-up, after which the sled motor continues to operate (by the circuit) for approximately 20 ~ 30 milliseconds ; there is then again a reverse operation, and movement to the position at which the switch is switched OFF.

(2) Rotation continues for about 20 ~ 30 milliseconds after the switch is switched OFF, and then the pick-up stop at home position.

CD PLAYER ADJUSTMENTS

a. PREPARATIONS

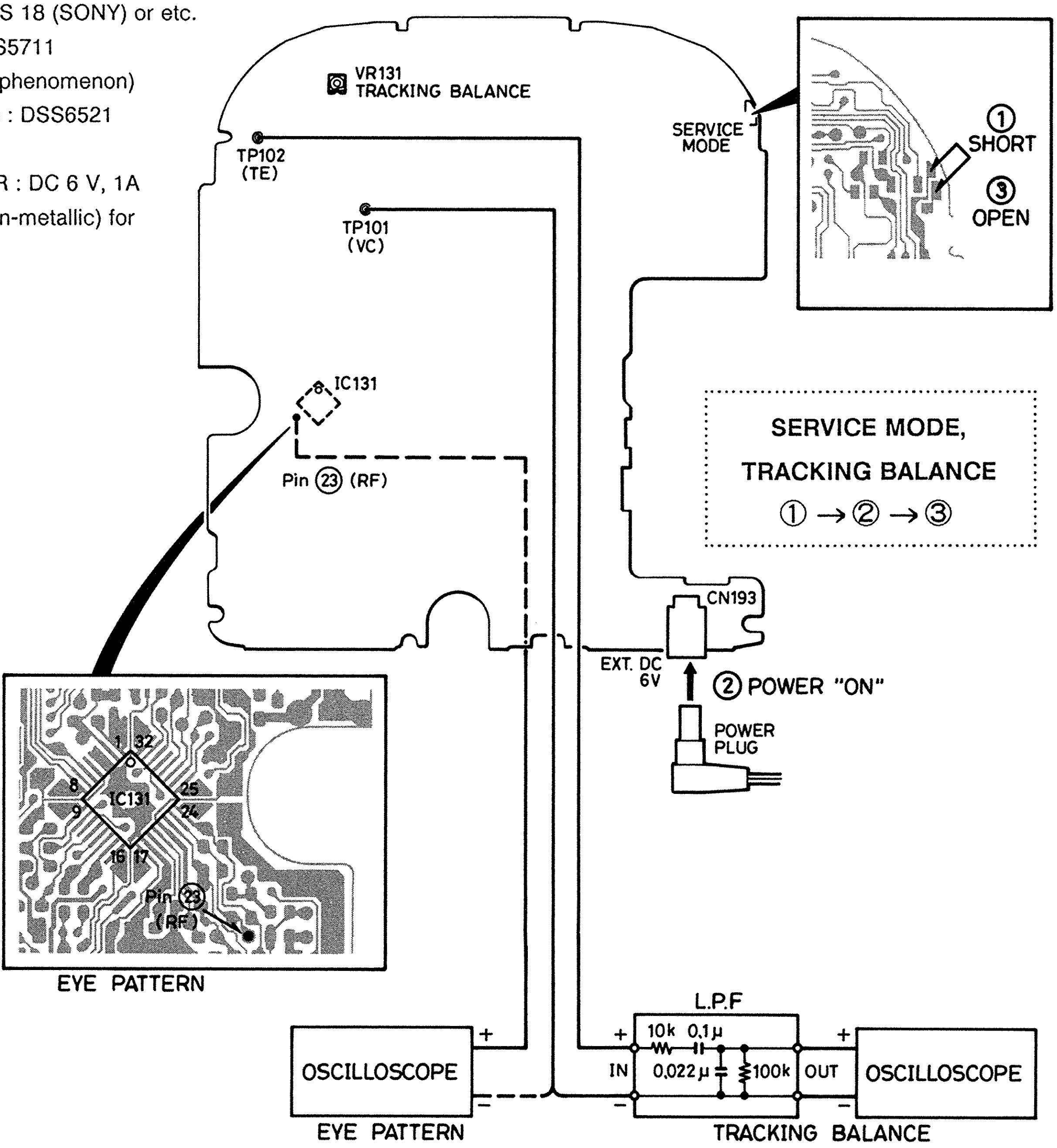
(a) Measuring instruments, tools and filter

(1) Test disc. : YEDS 18 (SONY) or etc.

(2) Oscilloscope : SS5711
(10 MHz or dual-phenomenon)
or Memoryscope : DSS6521
(Storagescope)

(3) EXT. DC POWER : DC 6 V, 1A

(4) Screwdrivers (non-metallic) for adjustments

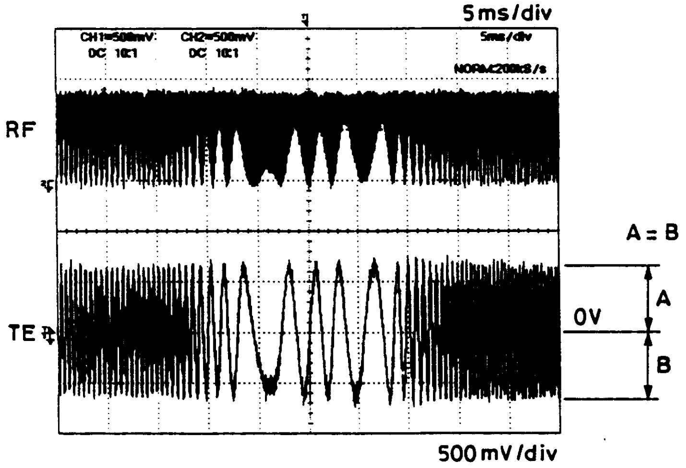

VR131
TRACKING BALANCE
SERVICE MODE
① SHORT
③ OPEN
TP102 (TE)
TP101 (VC)
IC131
8
Pin ㉓ (RF)
SERVICE MODE,
TRACKING BALANCE
① → ② → ③
CN193
EXT. DC 6V
② POWER "ON"
POWER PLUG
1
32
8
9
IC131
25
24
16
17
Pin ㉓ (RF)
EYE PATTERN
L.P.F
10k
0.1μ
0.022μ
100k
IN
OUT
+
−
OSCILLOSCOPE
EYE PATTERN
OSCILLOSCOPE
TRACKING BALANCE

c. ADJUSTMENTS

Adjustment Item	Measuring instrument	Service mode	Output connection	Adjustment location	Adjustment value
(a) Tracking balance	Oscilloscope	yes	TP 102 : TE TP 101 : VC	VR131	Waveform symmetry A = B
(b) Checking the "eye" pattern	Oscilloscope	—	IC131 (23) : RF TP 101 : VC	—	Check be sure that the "eye" pattern is at the center of the waveform and that the diamond shape is clearly defined

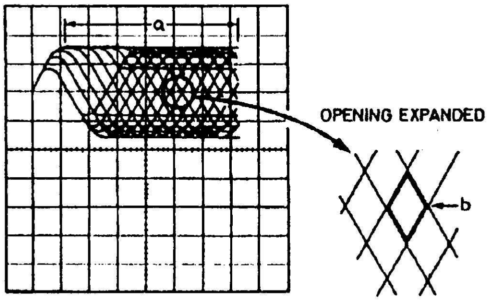
(a) Tracking balance adjustment

(1) Connect an oscilloscope to TP102 (TE) and TP101 (VC).
(2) Short-circuit pattern. (①)
(3) Insert the EXT. power plug. (②) (POWER "ON")
(4) Remove the short-circuit pattern. (③).
(Service mode : TRACKING BALANCE)
(5) Set the test disc.
(6) PLAY / PAUSE switch push "ON" twice.
(7) Adjust **VR131** so that the oscilloscope's waveform is symmetrical, as shown in the illustration.
(8) To cancel service mode, disconnect the EXT. power plug from the unit.

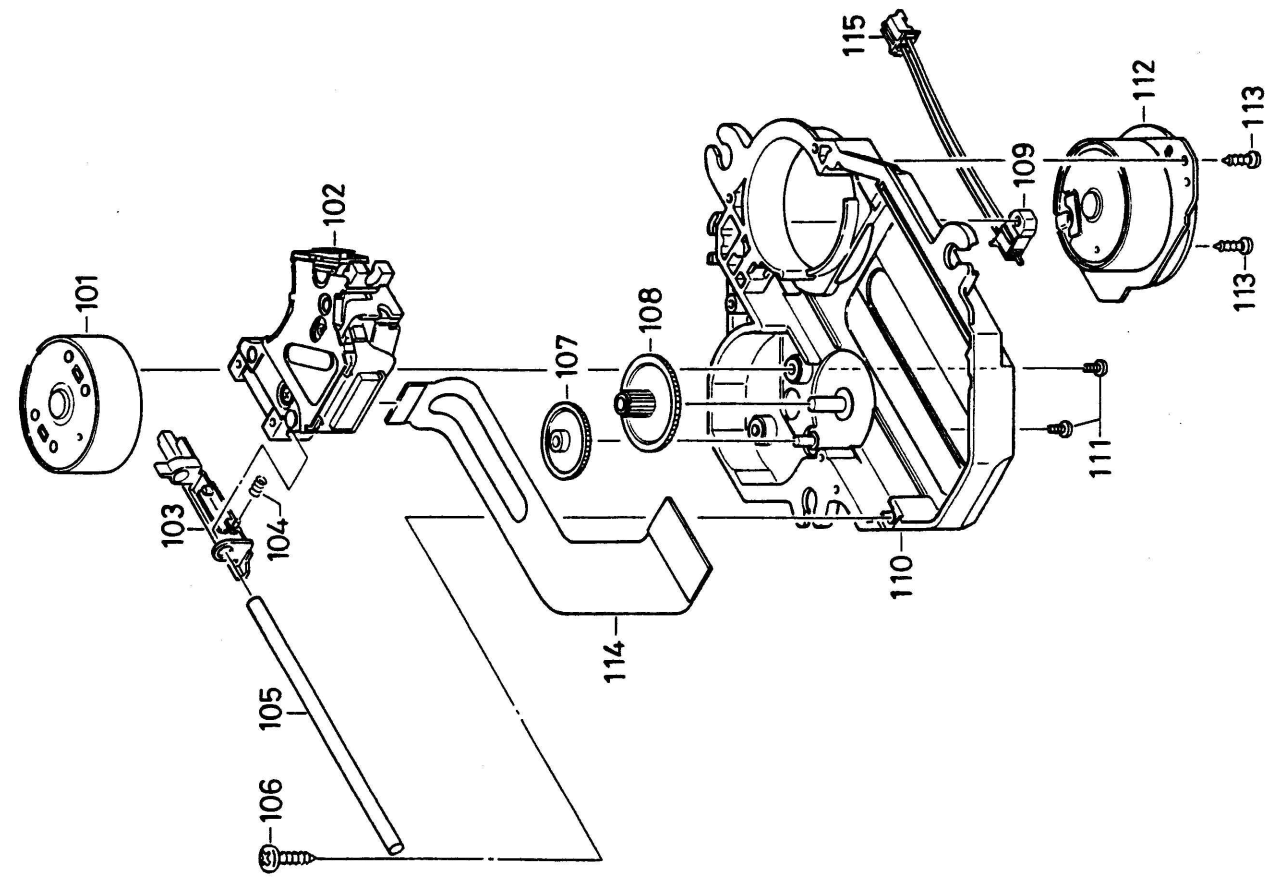


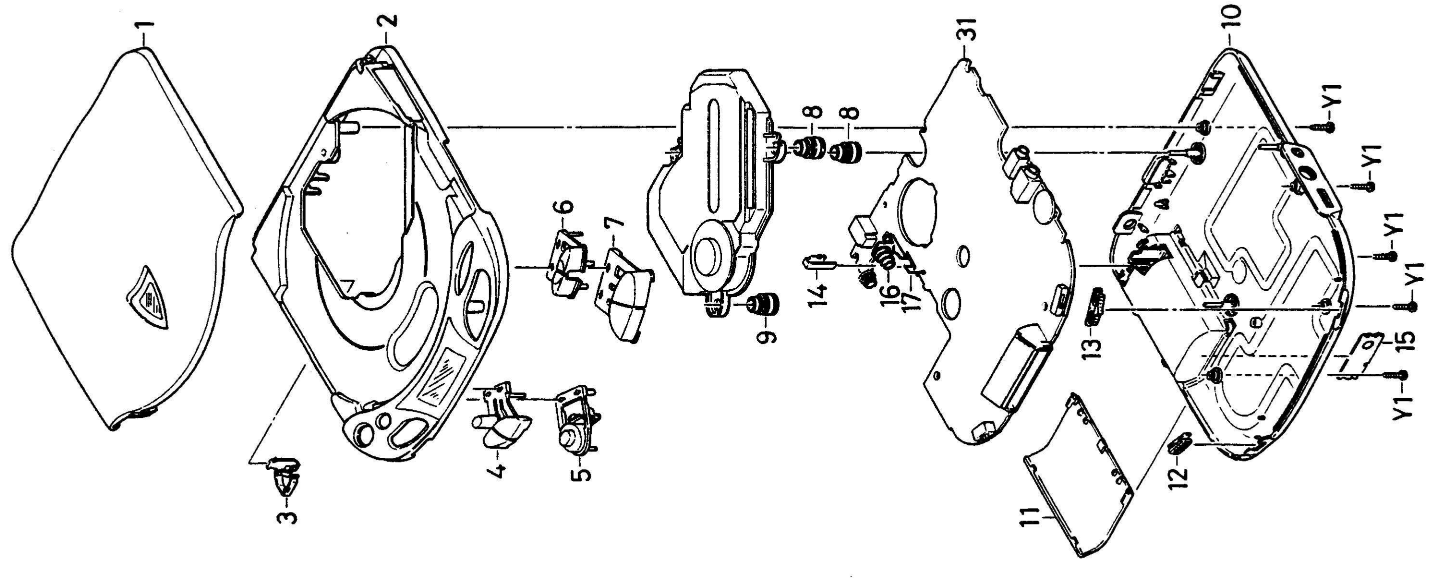
(b) Checking the "eye" pattern

(1) Connect an oscilloscope to IC131 (pin 23) (RF) and TP101 (VC).
(2) Switch "ON" the POWER.
(3) Load the test disc.
(4) PLAY switch push ON.
(5) Check to be sure that the " **eye** " pattern is at the center of waveform and that the diamond shape is clearly defined.
(6) Press the STOP button.
(7) Switch "OFF" the **DC POWER**.



EXPLODED VIEW (CABINET & CHASSIS / CD MECHANISM)


101
102
103
104
105
106
107
108
109
110
111
112
113
113
114
115


1
2
3
4
5
6
7
8
8
9
10
11
12
13
14
15
16
17
31
Y1
Y1
Y1
Y1
Y1

PARTS LIST

PRODUCT SAFETY NOTICE

Each precaution in this manual should be followed during servicing. Components identified with the IEC symbol ⚠ in the parts list and the schematic diagram designate components in which safety can be of special significance. When replacing a component identified ⚠, use only the replacement parts designated, or parts with the same ratings of resistance, wattage or voltage that are designated in the parts list in this manual. Leakage-current or resistance measurements must be made to determine that exposed parts are acceptably insulated from the supply circuit before returning the product to the customer.

CAUTION: Regular type resistors and capacitors are not listed. To know those values, refer to the schematic diagram.
N.S.P : Not available as service parts.

PACKING & ACCESSORIES

Ref. No.	Part No.	Description
	614 280 2106	CARTON CASE INNER (CDP-355)
	614 281 1979	CARTON CASE INNER (CDP-455)
	614 280 2175	INSTRUCTION MANUAL(CDP-355)
	614 281 2044	INSTRUCTION MANUAL(CDP-455)
	645 011 9880	POLY SHEET-450X250MM,SET
	614 271 1026	CAUTION,DISC
	614 276 8778	LABEL,NI-CD BATTRY
	645 017 6104	ADAPTOR,CAR CASSETTE (CDP-455)
	614 283 3636	LABEL,CAR KIT, CABIINET BOTTOM
	645 017 6098	ADAPTOR,DC-DC,DC 12V/ DC 6V 500MA (CDP-455/UK))
	⚠645 011 8678	ADAPTOR,AC-DC,6CV-230XE, AC 230V,DC 6V 500MA (CDP-355/XE)
	⚠645 011 8685	ADAPTOR,AC-DC,6CV-230UK, AC 230V,DC 6V 500MA (CDP-455/UK)
	614 252 7764	HEADPHONE
	645 017 8832	CABLE,Y,RCA-2P
	645 017 4070	BATTERY,RECHARGE (CDP-355)

CABINET & CHASSIS

Ref. No.	Part No.	Description
1	614 279 1790	ASSY,LID,CD
2	614 279 1776	ASSY,CABINET
3	614 279 6061	SPRING,PLATE,LID CD-POP UP
4	614 279 0328	BUTTON,SET/MODE/SHOCK
5	614 279 0311	BUTTON,EJECT
6	614 279 0335	BUTTON,F BACK/F FWD
7	614 279 0342	BUTTON,STOP/PLAY
8	614 274 3737	SPACER,MECHANISM,CD
9	614 276 2554	SPACER,MECHANISM,CD
10	614 280 1994	ASSY,CABINET,BOTTOM(CDP-355)
10	614 281 1740	ASSY,CABINET,BOTTOM(CDP-455)
11	614 286 8218	ASSY,LID,BATTERY
12	614 279 0458	KNOB,SLIDE,HOLD
13	614 279 0465	KNOB,SLIDE,S/EQ/SYS
14	614 279 6078	TERMINAL,CHARGER
15	614 279 6108	TERMINAL,BATTERY,(+/-)
16	614 279 6092	TERMINAL,BATTERY,(-)
17	614 283 8433	TERMINAL,CHARGER
	614 125 2117	CUSHION,BLACK,23X27MM CABINET
	614 276 2844	LABEL,SAFETY,CAUTION LASER
	614 191 3698	LABEL,LASER (CDP-355)
	614 231 6832	LABEL,SAFETY,LASER,CLASS

FIXING PARTS

Ref. No.	Part No.	Description
Y1	411 022 6800	SCR S-TPG PAN 2X10MM, CABINET BOTTOM

CD P.W.BOARD ASSY

Ref. No.	Part No.	Description
31	614 277 6681	ASSY,PWB,CD
	614 279 0519	MOUNTING,LCD
	614 283 8129	CUSHION,RUBBER,LCD MTG.
	614 279 6085	TERMINAL,BATTERY, (+)
A1501	645 015 8100	LCD
B1701	645 013 7365	LINE FILTER, EMC
B1702	645 013 7365	LINE FILTER, EMC
B1801	645 013 7365	LINE FILTER, EMC
B1802	645 013 7365	LINE FILTER, EMC
B1901	645 013 7365	LINE FILTER, EMC
B1902	645 013 7365	LINE FILTER, EMC
C1302	403 216 2507	TA-SOLID 47U M 4V
C1303	403 010 1102	CERAMIC 1000P J 50V
C1304	403 042 9305	ELECT 22U M 16V
C1305	403 190 7109	TA-SOLID 2.2U M 10V
or	403 313 4206	TA-SOLID 2.2U M 10V
C1306	403 216 2507	TA-SOLID 47U M 4V
C1307	403 068 0409	CERAMIC 0.1U Z 25V
C1308	403 093 3703	OS-SOLID 10U M 6.3V
C1321	403 068 0409	CERAMIC 0.1U Z 25V
C1323	403 022 8205	CERAMIC 33P J 50V
C1324	403 073 9107	CERAMIC 4700P K 50V
C1325	403 026 7600	CERAMIC 470P J 50V
C1326	403 031 2201	CERAMIC 680P J 50V
C1328	403 009 5807	CERAMIC 100P J 50V
C1335	403 069 1801	CERAMIC 1000P K 50V
C1337	403 070 8806	CERAMIC 1500P K 50V
C1339	403 009 5807	CERAMIC 100P J 50V
C1341	403 068 0409	CERAMIC 0.1U Z 25V
C1358	403 027 5407	CERAMIC 5P D 50V
C1359	403 032 8608	CERAMIC 8P D 50V
C1360	403 022 8205	CERAMIC 33P J 50V
C1362	403 130 3604	CERAMIC 0.047U K 25V
C1401	403 009 5807	CERAMIC 100P J 50V
C1402	403 009 5807	CERAMIC 100P J 50V
C1403	403 313 4305	TA-SOLID 1U M 16V
or	403 091 0209	TA-SOLID 1U M 16V
C1404	403 009 5807	CERAMIC 100P J 50V
C1405	403 069 1702	CERAMIC 1000P K 50V
C1406	403 069 1702	CERAMIC 1000P K 50V
C1407	403 069 1702	CERAMIC 1000P K 50V
C1408	403 069 1702	CERAMIC 1000P K 50V
C1409	403 068 0409	CERAMIC 0.1U Z 25V
C1410	403 018 7502	CERAMIC 220P J 50V
C1411	403 018 7502	CERAMIC 220P J 50V
C1412	403 311 1603	TA-SOLID 22U M 4V
C1413	403 068 0409	CERAMIC 0.1U Z 25V
C1414	403 073 0005	CERAMIC 3300P K 50V
C1415	403 050 8000	ELECT 3.3U M 50V
C1422	403 068 0409	CERAMIC 0.1U Z 25V
C1423	403 068 0409	CERAMIC 0.1U Z 25V
C1424	403 038 7407	ELECT 220U M 6.3V
C1431	403 038 7407	ELECT 220U M 6.3V
C1432	403 069 5601	CERAMIC 0.01U K 50V

PARTS LIST

Ref. No.	Part No.	Description
C1433	403 009 5807	CERAMIC 100P J 50V
C1434	403 042 3907	ELECT 100U M 16V
C1436	403 216 2507	TA-SOLID 47U M 4V
C1437	403 093 3703	OS-SOLID 10U M 6.3V
C1451	403 068 0409	CERAMIC 0.1U Z 25V
C1452	403 093 3703	OS-SOLID 10U M 6.3V
C1453	403 190 7109	TA-SOLID 2.2U M 10V
or	403 313 4206	TA-SOLID 2.2U M 10V
C1455	403 038 2709	ELECT 100U M 6.3V
C1459	403 069 1702	CERAMIC 1000P K 50V
C1460	403 314 8708	CERAMIC 0.68U K 16V
C1461	403 010 1102	CERAMIC 1000P J 50V
C1462	403 010 1102	CERAMIC 1000P J 50V
C1463	403 070 1005	CERAMIC 0.1U K 50V
C1464	403 130 3604	CERAMIC 0.047U K 25V
C1465	403 069 5700	CERAMIC 0.01U K 50V
C1466	403 049 1906	ELECT 1U M 50V
C1467	403 070 8806	CERAMIC 1500P K 50V
C1468	403 068 0409	CERAMIC 0.1U Z 25V
C1469	403 069 5700	CERAMIC 0.01U K 50V
C1470	403 042 9305	ELECT 22U M 16V
C1471	403 068 0409	CERAMIC 0.1U Z 25V
C1472	403 049 2002	ELECT 1U M 50V
C1475	403 049 2002	ELECT 1U M 50V
C1476	403 068 0409	CERAMIC 0.1U Z 25V
C1477	403 068 0409	CERAMIC 0.1U Z 25V
C1478	403 038 0705	ELECT 47U M 4V
C1481	403 068 0409	CERAMIC 0.1U Z 25V
C1482	403 039 3200	ELECT 47U M 6.3V
C1483	403 068 0409	CERAMIC 0.1U Z 25V
C1484	403 068 0409	CERAMIC 0.1U Z 25V
C1486	403 022 8205	CERAMIC 33P J 50V
C1487	403 022 8205	CERAMIC 33P J 50V
C1491	403 039 3200	ELECT 47U M 6.3V
C1492	403 068 0409	CERAMIC 0.1U Z 25V
C1493	403 009 5807	CERAMIC 100P J 50V
C1501	403 049 1906	ELECT 1U M 50V
C1502	403 068 0409	CERAMIC 0.1U Z 25V
C1503	403 276 7108	TA-SOLID 10U M 4V
C1504	403 069 5601	CERAMIC 0.01U K 50V
C1505	403 038 0705	ELECT 47U M 4V
C1506	403 039 3200	ELECT 47U M 6.3V
C1509	403 070 1005	CERAMIC 0.1U K 50V
C1701	403 042 0708	ELECT 10U M 16V
C1702	403 071 8102	CERAMIC 2200P K 50V
C1703	403 044 8504	ELECT 10U M 25V
C1801	403 042 0708	ELECT 10U M 16V
C1802	403 071 8102	CERAMIC 2200P K 50V
C1803	403 042 0708	ELECT 10U M 16V
C1901	403 012 6808	CERAMIC 15P J 50V
C1902	403 012 6808	CERAMIC 15P J 50V
C1911	403 068 0409	CERAMIC 0.1U Z 25V
C1912	403 038 1009	ELECT 470U M 4V
C1921	403 069 5601	CERAMIC 0.01U K 50V
C1922	403 050 1506	ELECT 2.2U M 50V
C1923	403 068 0409	CERAMIC 0.1U Z 25V
C1924	403 212 1603	CERAMIC 0.22U Z 25V
C1925	403 038 7407	ELECT 220U M 6.3V
C1926	403 038 7407	ELECT 220U M 6.3V
C1927	403 039 3200	ELECT 47U M 6.3V
C1928	403 038 0705	ELECT 47U M 4V

Ref. No.	Part No.	Description
C1930	403 038 5809	ELECT 22U M 6.3V
C1931	403 216 2507	TA-SOLID 47U M 4V
C1932	403 069 5601	CERAMIC 0.01U K 50V
C1933	403 216 2507	TA-SOLID 47U M 4V
C1935	403 134 7400	CERAMIC 1U Z 16V
C1942	403 068 0409	CERAMIC 0.1U Z 25V
CN101	645 015 8179	SOCKET,FPC 18P
or	645 017 1581	SOCKET,FPC 18P
CN141	645 005 9995	PLUG,2P
CN142	645 007 0051	PLUG,2P
or	645 005 7366	PLUG,2P
CN143	645 005 7380	PLUG,2P
CN191	645 000 1413	JACK,LINE OUT
CN192	645 016 1827	JACK,PHONES
CN193	645 011 8890	SOCKET,EXT. POWER
D1401	407 164 4002	DIODE RB160L-40
D1412	407 003 4507	DIODE DAP202K
D1413	407 003 3609	DIODE DAN202K
D1414	407 149 0807	DIODE 1SS355
D1421	407 164 4002	DIODE RB160L-40
D1431	407 164 4002	DIODE RB160L-40
D1452	407 149 0807	DIODE 1SS355
D1453	407 149 0807	DIODE 1SS355
D1505	407 149 0807	DIODE 1SS355
D1509	407 149 0807	DIODE 1SS355
D1511	407 149 0807	DIODE 1SS355
D1581	407 187 8001	ZENER DIODE UPD10B
D1918	407 149 0807	DIODE 1SS355
D1941	407 164 4002	DIODE RB160L-40
IC131	409 372 1903	IC BA6376K
IC141	409 373 5108	IC BH6504K
IC142	409 371 1102	IC RN5RG33AA
IC143	409 376 5204	IC RH5RH332B
IC145	409 373 5207	IC BU9317KS
IC146	409 372 2108	IC SM5856A1F
IC147	409 371 1300	IC LH6V4256K-10
or	410 250 1502	IC MSM51V4256A-10JS-DR1
or	410 250 1601	IC MSM51V4256A-70JS-DR1
or	410 250 1403	IC MSM51V4256A-80JS-DR1
IC151	410 259 0407	IC BU34381-05, UCOM
IC191	409 365 9503	IC SM5877AM
IC192	409 372 2009	IC BA3571FS
L1301	614 238 0499	INDUCTOR 10UH K
L1302	614 238 0499	INDUCTOR 10UH K
L1401	645 015 8209	INDUCTOR,470U K
L1431	645 015 8193	INDUCTOR,47U K
L1501	614 238 0499	INDUCTOR 10UH K
L1913	614 238 0499	INDUCTOR 10UH K
L1931	645 006 9864	INDUCTOR,80U
or	614 212 3171	INDUCTOR,FERITE
Q1303	405 005 5508	TR 2SA812-M6
or	405 002 0308	TR 2SA1037K-R
Q1305	405 005 5508	TR 2SA812-M6
or	405 002 0308	TR 2SA1037K-R
Q1306	405 029 3207	TR DTC114TK
Q1341	405 014 4509	TR 2SC2412K-R
or	405 011 1006	TR 2SC1623-L6
Q1421	405 105 8300	TR 2SB1132-R
or	405 105 8201	TR 2SB1132-Q
Q1422	405 000 2908	TR DTC114EK

PARTS LIST

Ref. No.	Part No.	Description
Q1424	405 005 5508	TR 2SA812-M6
or	405 002 0308	TR 2SA1037K-R
Q1431	405 022 6502	TR 2SD1628-G
or	405 047 7508	TR 2SD1628-F
Q1461	405 029 3207	TR DTC114TK
Q1502	405 106 2802	TR 2SJ188
Q1503	405 029 3207	TR DTC114TK
Q1504	405 029 3207	TR DTC114TK
Q1505	405 005 5508	TR 2SA812-M6
or	405 002 0308	TR 2SA1037K-R
Q1506	405 000 2908	TR DTC114EK
Q1701	405 021 2406	TR 2SD1048-X7
Q1702	405 021 2406	TR 2SD1048-X7
Q1801	405 021 2406	TR 2SD1048-X7
Q1802	405 021 2406	TR 2SD1048-X7
Q1911	405 000 1109	TR DTA124EK
Q1912	405 000 1109	TR DTA124EK
Q1921	405 029 3207	TR DTC114TK
Q1925	405 005 5508	TR 2SA812-M6
or	405 002 0308	TR 2SA1037K-R
Q1926	405 014 4509	TR 2SC2412K-R
or	405 011 1006	TR 2SC1623-L6
R1305	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
R1307	401 038 3603	MT-GLAZE 3.3K JA 1/10W
R1308	401 038 6406	MT-GLAZE 4.7K JA 1/10W
R1309	401 038 6406	MT-GLAZE 4.7K JA 1/10W
R1310	401 037 5608	MT-GLAZE 10K JA 1/10W
R1311	401 038 6406	MT-GLAZE 4.7K JA 1/10W
R1312	401 037 5400	MT-GLAZE 1K JA 1/10W
R1313	401 038 5508	MT-GLAZE 4.7 JA 1/10W
R1314	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
R1315	401 037 5608	MT-GLAZE 10K JA 1/10W
R1316	401 037 5707	MT-GLAZE 100K JA 1/10W
R1317	401 037 5707	MT-GLAZE 100K JA 1/10W
R1318	401 038 6505	MT-GLAZE 47K JA 1/10W
R1341	401 038 6505	MT-GLAZE 47K JA 1/10W
R1342	401 038 0800	MT-GLAZE 22K JA 1/10W
R1343	401 037 5707	MT-GLAZE 100K JA 1/10W
R1347	401 038 2101	MT-GLAZE 2.7K JA 1/10W
R1349	401 038 3702	MT-GLAZE 33K JA 1/10W
R1355	401 037 5707	MT-GLAZE 100K JA 1/10W
R1358	401 038 0800	MT-GLAZE 22K JA 1/10W
R1359	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
R1371	401 038 6505	MT-GLAZE 47K JA 1/10W
R1372	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
R1401	401 038 5300	MT-GLAZE 39K JA 1/10W
R1403	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
R1404	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
R1405	401 038 0800	MT-GLAZE 22K JA 1/10W
R1412	401 038 0909	MT-GLAZE 220K JA 1/10W
R1413	401 038 6505	MT-GLAZE 47K JA 1/10W
R1421	401 038 3504	MT-GLAZE 330 JA 1/10W
R1422	401 037 5608	MT-GLAZE 10K JA 1/10W
R1423	401 038 5102	MT-GLAZE 3.9K JA 1/10W
R1424	401 038 6505	MT-GLAZE 47K JA 1/10W
R1425	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
R1426	401 037 5400	MT-GLAZE 1K JA 1/10W
R1427	401 037 5707	MT-GLAZE 100K JA 1/10W
R1431	401 038 3504	MT-GLAZE 330 JA 1/10W
R1434	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
R1441	401 035 4108	MT-GLAZE 0.000 ZA 1/8W
R1450	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
R1451	401 037 5608	MT-GLAZE 10K JA 1/10W
R1452	401 036 1700	MT-GLAZE 22K JA 1/8W
R1453	401 037 8005	MT-GLAZE 15K JA 1/10W
R1454	401 036 4701	MT-GLAZE 330 JA 1/8W
R1455	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
R1456	401 038 9001	MT-GLAZE 680 JA 1/10W
R1457	401 037 5608	MT-GLAZE 10K JA 1/10W
R1458	401 037 5608	MT-GLAZE 10K JA 1/10W
R1459	401 038 3702	MT-GLAZE 33K JA 1/10W
R1460	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
R1461	401 037 0405	MT-GLAZE 56K JA 1/8W
R1462	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
R1463	401 038 9209	MT-GLAZE 6.8K JA 1/10W
R1464	401 039 1202	MT-GLAZE 910K JA 1/10W
R1465	401 038 8707	MT-GLAZE 62K JA 1/10W
R1466	401 038 9209	MT-GLAZE 6.8K JA 1/10W
R1467	401 037 5707	MT-GLAZE 100K JA 1/10W
R1468	401 038 0909	MT-GLAZE 220K JA 1/10W
R1469	401 038 6406	MT-GLAZE 4.7K JA 1/10W
R1471	401 037 5400	MT-GLAZE 1K JA 1/10W
R1472	401 037 7909	MT-GLAZE 1.5K JA 1/10W
R1473	401 038 6406	MT-GLAZE 4.7K JA 1/10W
R1474	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
R1475	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
R1476	401 037 9309	MT-GLAZE 18K JA 1/10W
R1477	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
R1478	401 038 6307	MT-GLAZE 470 JA 1/10W
R1479	401 038 6505	MT-GLAZE 47K JA 1/10W
R1480	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
R1481	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
R1483	401 037 5608	MT-GLAZE 10K JA 1/10W
R1484	401 038 6604	MT-GLAZE 470K JA 1/10W
R1485	401 038 0701	MT-GLAZE 2.2K JA 1/10W
R1486	401 037 6803	MT-GLAZE 12K JA 1/10W
R1487	401 038 6604	MT-GLAZE 470K JA 1/10W
R1488	401 038 6505	MT-GLAZE 47K JA 1/10W
R1489	401 038 7205	MT-GLAZE 5.1K JA 1/10W
R1490	401 036 8105	MT-GLAZE 470 JA 1/8W
R1491	401 038 7601	MT-GLAZE 560 JA 1/10W
R1492	401 038 7601	MT-GLAZE 560 JA 1/10W
R1493	401 038 7601	MT-GLAZE 560 JA 1/10W
R1494	401 038 7601	MT-GLAZE 560 JA 1/10W
R1495	401 038 7601	MT-GLAZE 560 JA 1/10W
R1496	401 038 7601	MT-GLAZE 560 JA 1/10W
R1497	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
R1498	401 037 5400	MT-GLAZE 1K JA 1/10W
R1499	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
R1501	401 038 7908	MT-GLAZE 560K JA 1/10W
R1502	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
R1503	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
R1504	401 038 7908	MT-GLAZE 560K JA 1/10W
R1505	401 037 5608	MT-GLAZE 10K JA 1/10W
R1506	401 037 5608	MT-GLAZE 10K JA 1/10W
R1507	401 038 0701	MT-GLAZE 2.2K JA 1/10W
R1508	401 038 3603	MT-GLAZE 3.3K JA 1/10W
R1509	401 038 6406	MT-GLAZE 4.7K JA 1/10W
R1510	401 037 5608	MT-GLAZE 10K JA 1/10W
R1511	401 038 2200	MT-GLAZE 27K JA 1/10W
R1512	401 038 7700	MT-GLAZE 5.6K JA 1/10W
R1514	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
R1515	401 037 5400	MT-GLAZE 1K JA 1/10W
R1551	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
R1553	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
R1554	401 038 6505	MT-GLAZE 47K JA 1/10W

PARTS LIST

Ref. No.	Part No.	Description
R1555	401 037 5707	MT-GLAZE 100K JA 1/10W
R1556	401 037 5806	MT-GLAZE 1M JA 1/10W
R1557	401 037 5608	MT-GLAZE 10K JA 1/10W
R1559	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
R1561	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
R1576	401 038 3603	MT-GLAZE 3.3K JA 1/10W
R1577	401 035 7901	MT-GLAZE 1.5K JA 1/8W
R1580	401 038 6505	MT-GLAZE 47K JA 1/10W
R1581	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
R1582	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
R1583	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
R1584	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
R1585	401 037 5608	MT-GLAZE 10K JA 1/10W
R1586	401 037 5608	MT-GLAZE 10K JA 1/10W
R1587	401 037 5400	MT-GLAZE 1K JA 1/10W
R1588	401 038 6505	MT-GLAZE 47K JA 1/10W
R1590	401 037 5707	MT-GLAZE 100K JA 1/10W
R1591	401 037 5608	MT-GLAZE 10K JA 1/10W
R1593	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
R1594	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
R1595	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
R1701	401 037 5400	MT-GLAZE 1K JA 1/10W
R1702	401 037 5400	MT-GLAZE 1K JA 1/10W
R1703	401 037 5400	MT-GLAZE 1K JA 1/10W
R1704	401 037 8005	MT-GLAZE 15K JA 1/10W
R1705	401 037 5400	MT-GLAZE 1K JA 1/10W
R1706	401 038 0909	MT-GLAZE 220K JA 1/10W
R1711	401 037 5400	MT-GLAZE 1K JA 1/10W
R1712	401 038 3504	MT-GLAZE 330 JA 1/10W
R1801	401 037 5400	MT-GLAZE 1K JA 1/10W
R1802	401 037 5400	MT-GLAZE 1K JA 1/10W
R1803	401 037 5400	MT-GLAZE 1K JA 1/10W
R1804	401 037 8005	MT-GLAZE 15K JA 1/10W
R1805	401 037 5400	MT-GLAZE 1K JA 1/10W
R1806	401 038 0909	MT-GLAZE 220K JA 1/10W
R1811	401 037 5400	MT-GLAZE 1K JA 1/10W
R1812	401 038 3504	MT-GLAZE 330 JA 1/10W
R1911	401 038 7601	MT-GLAZE 560 JA 1/10W
R1912	401 038 7601	MT-GLAZE 560 JA 1/10W
R1913	401 038 7601	MT-GLAZE 560 JA 1/10W
R1914	401 038 6505	MT-GLAZE 47K JA 1/10W
R1915	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
R1916	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
R1917	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
R1921	401 037 5707	MT-GLAZE 100K JA 1/10W
R1922	401 037 5707	MT-GLAZE 100K JA 1/10W
R1923	401 038 7700	MT-GLAZE 5.6K JA 1/10W
R1924	401 038 7700	MT-GLAZE 5.6K JA 1/10W
R1925	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
R1926	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
R1927	401 038 6604	MT-GLAZE 470K JA 1/10W
R1928	401 037 5707	MT-GLAZE 100K JA 1/10W
R1929	401 037 5707	MT-GLAZE 100K JA 1/10W
R1931	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
R1933	401 037 5103	MT-GLAZE 10 JA 1/10W
R1934	401 037 5103	MT-GLAZE 10 JA 1/10W
R1935	401 037 5608	MT-GLAZE 10K JA 1/10W
R1941	401 038 3405	MT-GLAZE 33 JA 1/10W
R1942	401 038 3405	MT-GLAZE 33 JA 1/10W
R1943	401 038 3405	MT-GLAZE 33 JA 1/10W
R1944	401 038 3405	MT-GLAZE 33 JA 1/10W

Ref. No.	Part No.	Description
R1945	401 038 3405	MT-GLAZE 33 JA 1/10W
R1947	401 038 0503	MT-GLAZE 22 JA 1/10W
R1949	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
R1950	401 037 5608	MT-GLAZE 10K JA 1/10W
S1501	614 240 0944	SWITCH,TACT,PLAY/PAUSE
or	614 220 5426	SWITCH,TACT
S1502	614 240 0944	SWITCH,TACT,STOP
or	614 220 5426	SWITCH,TACT
S1503	614 240 0944	SWITCH,TACT,F.BACK
or	614 220 5426	SWITCH,TACT
S1504	614 240 0944	SWITCH,TACT,F.FWD
or	614 220 5426	SWITCH,TACT
S1505	614 240 0944	SWITCH,TACT,P-MODE
or	614 220 5426	SWITCH,TACT
S1506	614 240 0944	SWITCH,TACT,SET
or	614 220 5426	SWITCH,TACT
S1507	645 000 2083	SWITCH,PUSH 1P-1T, ANTI-SHOCK
S1511	645 008 8728	SWITCH,SLIDE 1P-2T,HOLD
S1513	614 230 8578	SWITCH,PUSH,OPEN/CLOSE
S1921	645 009 5795	SWITCH,SLIDE 2P-3T,E.E.S.
VR131	645 013 7730	VR,SEMI,10K N
VR191	614 232 2000	VR,ROTARY
X1501	645 013 7532	OSC,CERAMIC 4.19MHZ
X1901	645 017 0157	OSC,CERAMIC 16.93MHZ

CD MECHANISM (PM-CDB300-SP)

Ref. No.	Part No.	Description
101	645 011 2881	ASSY,MOTOR CD, SLED MOTOR
102	645 014 4103	PICK-UP,LASER SF-C93
103	614 270 4882	GEAR,PICK-UP RACK GEAR
104	614 271 0760	SPRING,COMP, PICK-UP RACK GEAR
105	614 270 4929	SHAFT,PICK-UP RAIL
106	411 021 3107	SCR S-TPG BIN 2.6X8MM, PICK-UP RAIL FIX
107	614 270 4851	GEAR,SLED RETARD GEAR
108	614 270 4868	GEAR,SLED GEAR
109	614 024 1600	SWITCH,EP 1P-1T, LIMIT SWITCH
110	614 270 4769	CHASSIS,BASE MECHANISM
111	614 273 1734	SPECIAL SCREW-1.7X3MM, SLED MOTOR FIX
112	645 011 2874	ASSY,MOTOR CD, SPINDLE MOTOR
113	411 152 4301	SCR S-TPG PAN PCS 1.7X6MM, MOUNTING FIX
114	614 276 3209	FLEXIBLE PWB,PICK-UP
115	614 271 0364	CORD,2P CONNECTOR, LIMIT SWITCH LEAD

IC VOLTEGES

BATTERY TERMINAL : DC 3 (V)

IC131 (V)

PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
PLAY	1.7	1.7	0	0	1.7	2.1	0.2	2.2	1.3	1.7	2.2	3.1	1.7	0.1	0.1
STOP	1.6	1.6	0	0	0	3.0	0	1.6	1.2	1.7	0	0	0	0.1	3.1
PIN	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
PLAY	1.6	1.5	0	0.1	1.1	3.2	1.3	2.0	1.6	1.7	1.8	1.8	1.8	1.5	1.6
STOP	1.6	1.5	0	0.1	0.1	3.2	1.3	1.4	1.7	1.7	1.7	1.7	1.7	0	1.7
PIN	31	32													
PLAY	1.7	-													
STOP	1.7	-													

IC141

PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
PLAY	0.1	2.6	0.1	0	0.1	2.6	0.2	0	0.1	2.6	0.1	0	3.0	0.1	1.2
STOP	0.1	2.6	0.1	0	0.1	2.6	0.1	0	0.1	2.6	0.1	0	3.0	2.6	1.2
PIN	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
PLAY	1.9	1.6	6.3	3.3	1.0	0.9	0.1	0.1	2.6	0.1	0	0.2	2.6	0.1	0
STOP	1.9	1.6	6.4	3.2	2.6	0.4	2.4	0.1	2.6	0.1	0	0.1	2.6	0.1	0
PIN	31	32	33	34	35	36	37	38	39	40	41	42	43	44	
PLAY	0.6	2.6	0.3	1.6	1.8	3.3	1.7	1.8	1.6	1.6	1.7	0.9	0.8	0	
STOP	0.1	2.6	0.1	1.7	1.8	3.3	1.6	1.8	1.7	1.6	1.6	0.4	2.6	0	

IC142

PIN	1	2	3	4	5
PLAY	0	6.9	3.3	6.0	0
STOP	0	7.4	3.3	6.6	0

IC143

PIN	1	2	3
PLAY	0.4	3.3	0
STOP	0.4	3.3	0

IC145

PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
PLAY	3.2	1.6	1.6	2.1	0	1.4	1.1	1.6	0	0.1	0.1	1.6	3.0	3.2	1.6
STOP	3.2	1.6	1.6	2.1	0	1.4	1.3	1.6	0	3.0	0.1	0	0	0	1.7
PIN	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
PLAY	1.4	1.5	1.0	1.4	0	1.6	1.6	1.6	1.6	1.6	1.6	0	-	-	0.1
STOP	1.4	1.5	1.2	0	0	1.5	1.6	1.6	0	1.6	1.6	0	-	-	0
PIN	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
PLAY	1.6	-	0.1	-	-	3.2	3.0	0.1	3.3	3.2	-	-	-	-	-
STOP	1.6	-	0	-	-	3.2	0	0	3.3	3.2	-	-	-	-	-
PIN	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
PLAY	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5
STOP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.6
PIN	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
PLAY	1.6	-	-	-	-	-	0	1.6	1.6	1.1	2.0	-	0	3.3	-
STOP	1.6	-	-	-	-	-	3.2	1.6	1.6	0	2.0	-	0	3.3	-
PIN	76	77	78	79	80										
PLAY	1.6	3.2	3.2	-	-										
STOP	1.6	0	3.2	-	-										

IC VOLTEGES

BATTERY TERMINAL : DC 3 (V)

IC146

PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
PLAY	3.2	-	-	-	-	-	-	-	1.6	0	1.1	1.6	2.0	1.6	1.6
STOP	3.2	-	-	-	-	-	-	-	1.6	0	0	1.6	2.0	1.6	1.6
PIN	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
PLAY	1.1	3.2	1.6	0.1	3.3	0	-	0	3.3	0	3.2	3.2	3.2	0	0
STOP	0	0	1.6	0	3.3	0	-	0	3.3	0	3.2	3.2	3.2	0	0
PIN	31	32	33	34	35	36	37	38	39	40	41	42	43	44	
PLAY	0	0	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	
STOP	0	0	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	

IC147, IC148

PIN	1	2	3	4	5	9	10	11	12	13	14	15	16	17	18
PLAY	0	0	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
STOP	0	0	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
PIN	22	23	24	25	26										
PLAY	3.2	3.2	0	0	0										
STOP	3.2	3.2	0	0	0										

IC151

PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
PLAY	1.7	1.6	1.7	1.6	1.7	1.6	1.7	1.6	1.5	1.6	1.5	1.7	1.6	1.5	-
STOP	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.6	1.6	1.7	1.6	1.5	-
PIN	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
PLAY	-	3.0	3.3	0	0	3.3	0.4	3.2	-	-	-	0.4	3.2	3.2	0
STOP	-	3.0	3.3	3.3	3.3	0	0	3.3	-	-	-	0.4	3.2	0.5	0
PIN	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
PLAY	0.1	0	2.6	3.9	-	-	0	0	0	3.0	3.2	0.1	3.2	3.2	0
STOP	3.1	0	0	0	-	-	0	0	0	0	3.3	0	3.2	3.2	0
PIN	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
PLAY	3.2	2.1	0	1.1	1.6	3.3	3.2	3.2	3.2	2.7	3.2	3.0	3.3	0	-
STOP	3.2	2.1	0	1.1	1.6	3.3	3.2	3.2	3.2	3.0	3.2	3.0	3.2	0	-
PIN	61	62	63	64											
PLAY	1.6	1.6	1.6	1.6											
STOP	1.6	1.6	1.6	1.6											

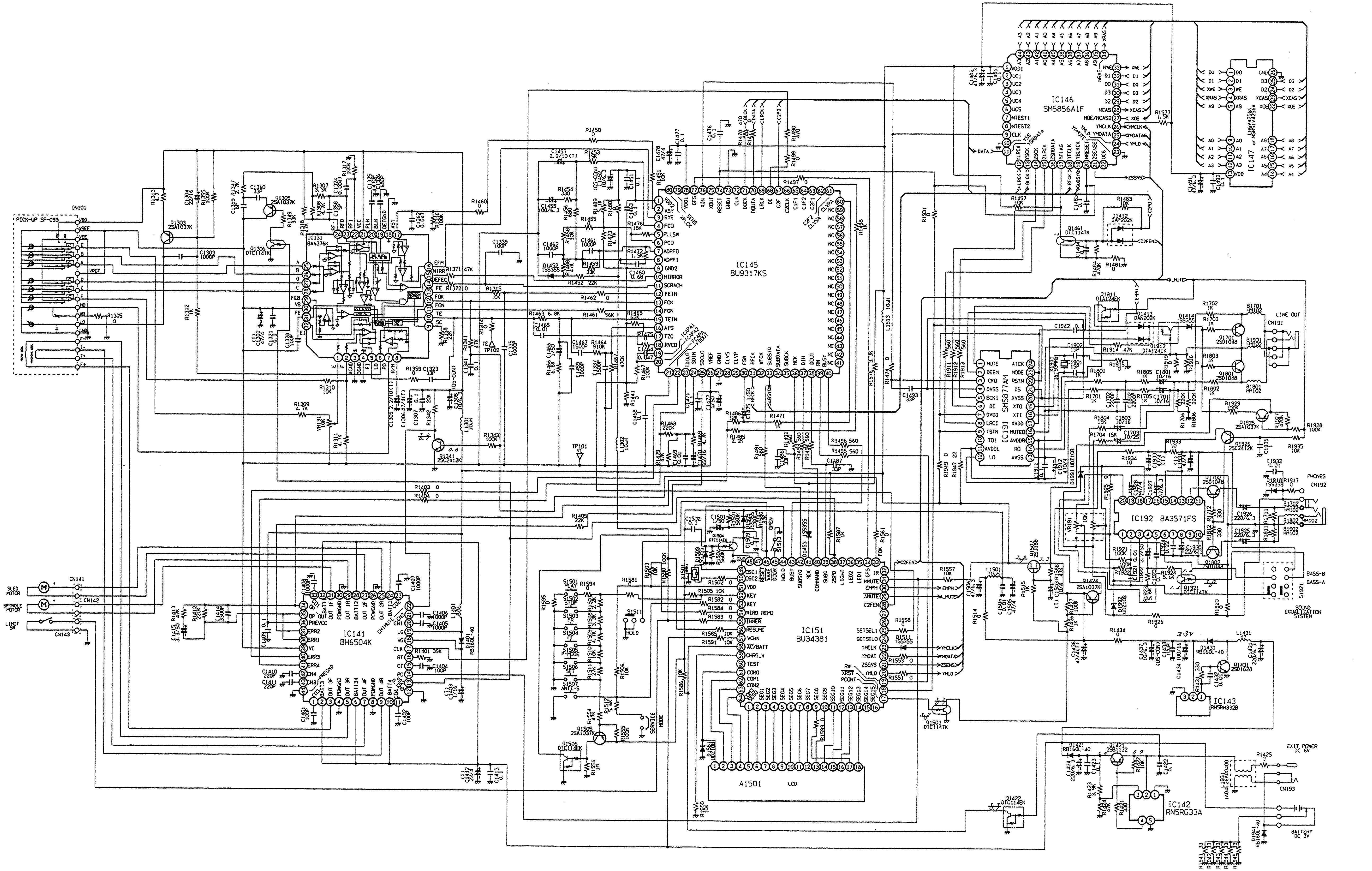
IC191

PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
PLAY	0.3	0	1.6	0	1.6	1.1	3.2	1.6	3.2	-	3.2	1.6	0	1.6	3.2
STOP	2.6	0	1.6	0	1.6	0	3.2	1.6	3.2	-	3.2	1.6	0	1.6	3.2
PIN	16	17	18	19	20	21	22	23	24						
PLAY	0	3.2	1.4	1.6	0	0	3.3	3.2	-						
STOP	3.1	3.2	1.4	1.6	0	0	3.3	3.2	-						

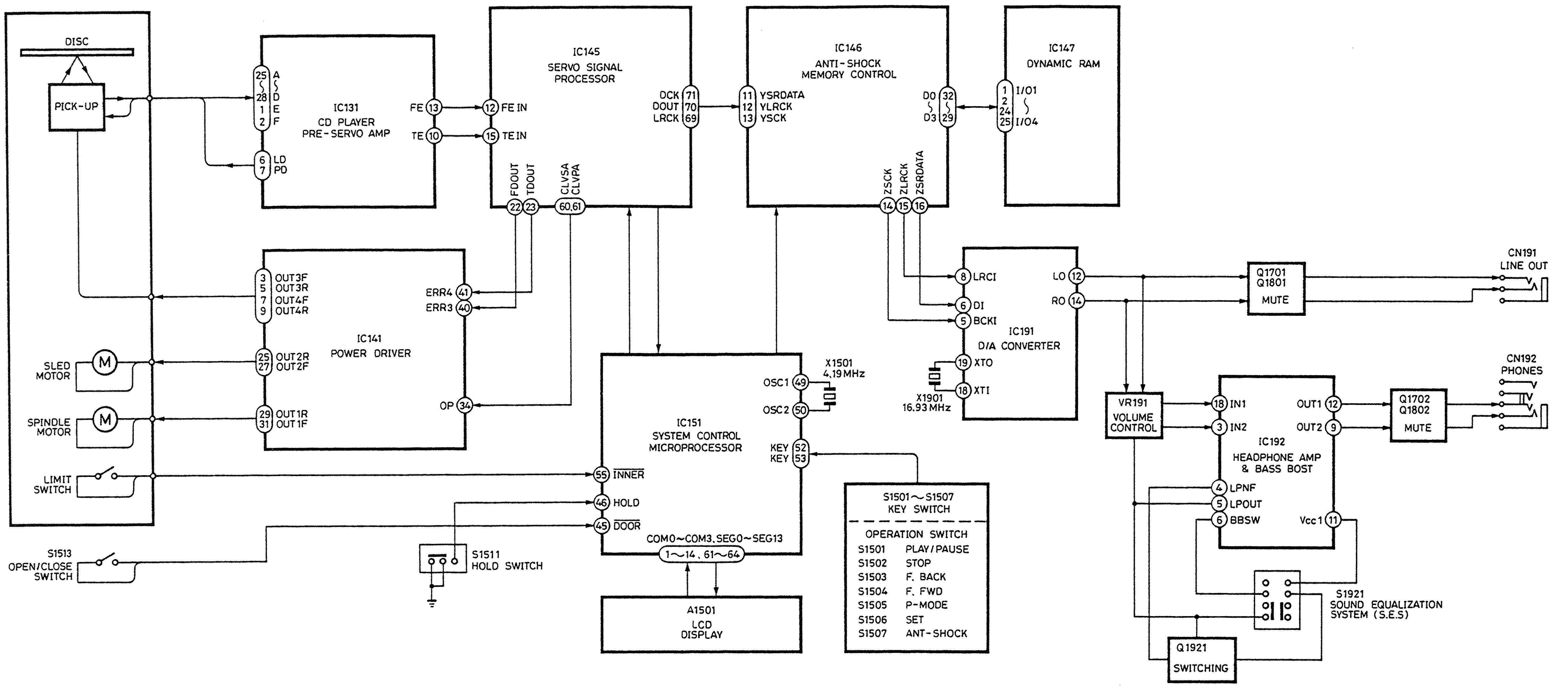
IC192

PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
PLAY	0	1.6	1.6	1.6	1.6	1.6	0.6	0	1.3	0	3.2	1.4	3.2	-	3.2
STOP	0	1.5	1.6	1.6	1.6	1.6	0.6	0	1.3	0	3.2	1.4	3.2	-	3.2
PIN	16	17	18	19	20										
PLAY	3.1	-	1.6	1.6	1.6										
STOP	3.1	-	1.6	1.6	1.6										

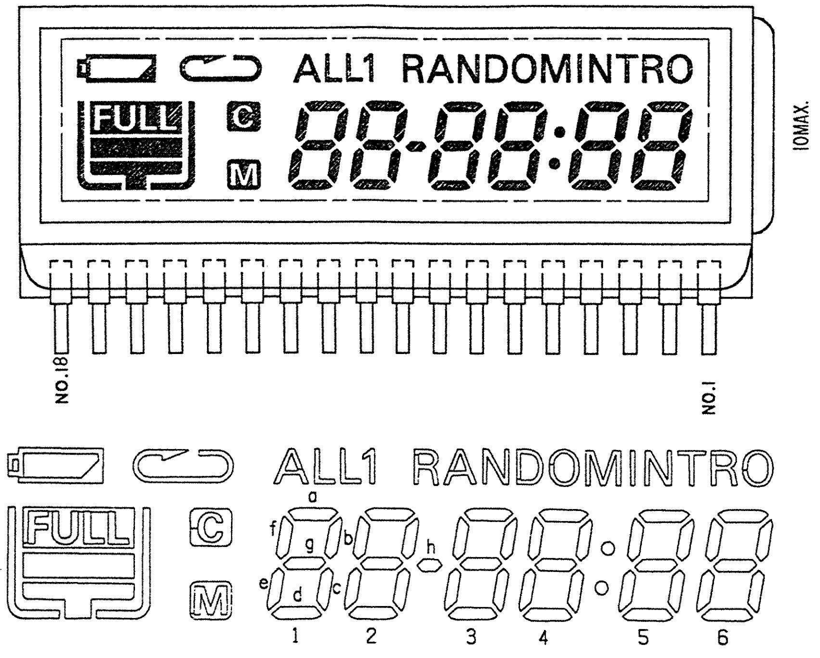
SCHEMATIC DIAGRAM


PICK-UP SF-C93
CN101
IC131 BA6376K
IC145 BU9317KS
IC146 SM5856A1F
IC147
IC191 SM5877AM
IC192 BA3571FS
IC141 BH6504K
IC151 BU34381
IC143 RH5RH332B
IC142 RN5RG33A
A1501 LCD
SLED MOTOR
SPINDLE MOTOR
LIMIT SW
CN141
CN142
CN143
LINE OUT
CN191
PHONES
CN192
BASS-B
BASS-A
SOUND EQUALIZATION SYSTEM
S1921
EXIT POWER DC 6V
CN193
BATTERY DC 3V
S1501 PLAY
S1502 STOP
S1503 FR
S1504 FF
S1505 MODE
S1506 EDIT
S1507 ANTI-S
S1511 HOLD
SERVICE MODE
TP101
TP102
Q1303 2SA1037K
Q1305 2SA1037K
Q1306 DTC114TK
Q1341 2SC2412K
Q1461 DTC114TK
Q1911 DTA124EK
Q1912 DTA124EK
Q1701 2SD1048
Q1801 2SD1048
Q1925 2SA1037K
Q1926 2SC2412K
Q1702 2SD1048
Q1802 2SD1048
Q1921 DTC114TK
Q1924 2SA1037K
Q1502 2SJ108
Q1503 DTC114TK
Q1504 DTC114TK
Q1505 2SA1037K
Q1506 DTC114EK
Q1421 2SB1132
Q1422 DTC114EK
Q1431 2SD1628
D1412 DAP202K
D1413 DAN202K
D1414 1SS355
D1421 RB160L-40
D1431 RB160L-40
D1941 RB160L-40
D1401 RB160L-40
D1511 1SS355
D1918 1SS355

BLOCK DIAGRAM & LCD



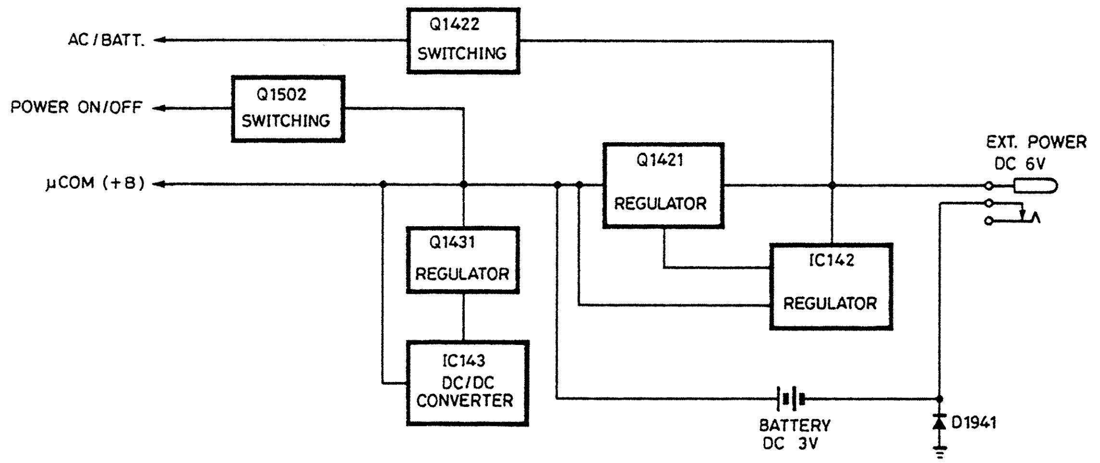
DISC
PICK-UP
IC131
CD PLAYER
PRE-SERVO AMP
25 A
28 D
1 E
2 F
6 LD
7 PD
FE 13
TE 10
IC145
SERVO SIGNAL
PROCESSOR
12 FE IN
15 TE IN
FDOUT
TDOUT
CLVSA
CLVPA
22 23 60,61
DCK 71
DOUT 70
LRCK 69
IC146
ANTI-SHOCK
MEMORY CONTROL
11 YSRDATA
12 YLRCK
13 YSCK
D0 32
D3 29
ZSCK
ZLRCK
ZSRDATA
14 15 16
IC147
DYNAMIC RAM
1 I/O1
2
24
25 I/O4
3 OUT3F
5 OUT3R
7 OUT4F
9 OUT4R
IC141
POWER DRIVER
ERR4 41
ERR3 40
25 OUT2R
27 OUT2F
29 OUT1R
31 OUT1F
OP 34
SLED MOTOR
SPINDLE MOTOR
LIMIT SWITCH
M
S1513
OPEN/CLOSE SWITCH
S1511
HOLD SWITCH
IC151
SYSTEM CONTROL
MICROPROCESSOR
55 INNER
46 HOLD
45 DOOR
OSC1 49
OSC2 50
X1501
4.19MHz
KEY 52
KEY 53
COM0~COM3, SEG0~SEG13
1~14, 61~64
A1501
LCD
DISPLAY
S1501~S1507
KEY SWITCH
OPERATION SWITCH
S1501 PLAY/PAUSE
S1502 STOP
S1503 F. BACK
S1504 F. FWD
S1505 P-MODE
S1506 SET
S1507 ANT-SHOCK
IC191
D/A CONVERTER
8 LRCI
6 DI
5 BCKI
19 XTO
18 XTI
X1901
16.93MHz
LO 12
RO 14
Q1701
Q1801
MUTE
CN191
LINE OUT
VR191
VOLUME
CONTROL
IC192
HEADPHONE AMP
& BASS BOST
18 IN1
3 IN2
OUT1 12
OUT2 9
4 LPNF
5 LPOUT
6 BBSW
Vcc1 11
Q1702
Q1802
MUTE
CN192
PHONES
S1921
SOUND EQUALIZATION
SYSTEM (S.E.S)
Q1921
SWITCHING



ALL1 RANDOMINTRO
FULL
C
M
88:88:88
10MAX.
NO.18
NO.1
a
b
c
d
e
f
g
h
1
2
3
4
5
6

LCD DISPLAY

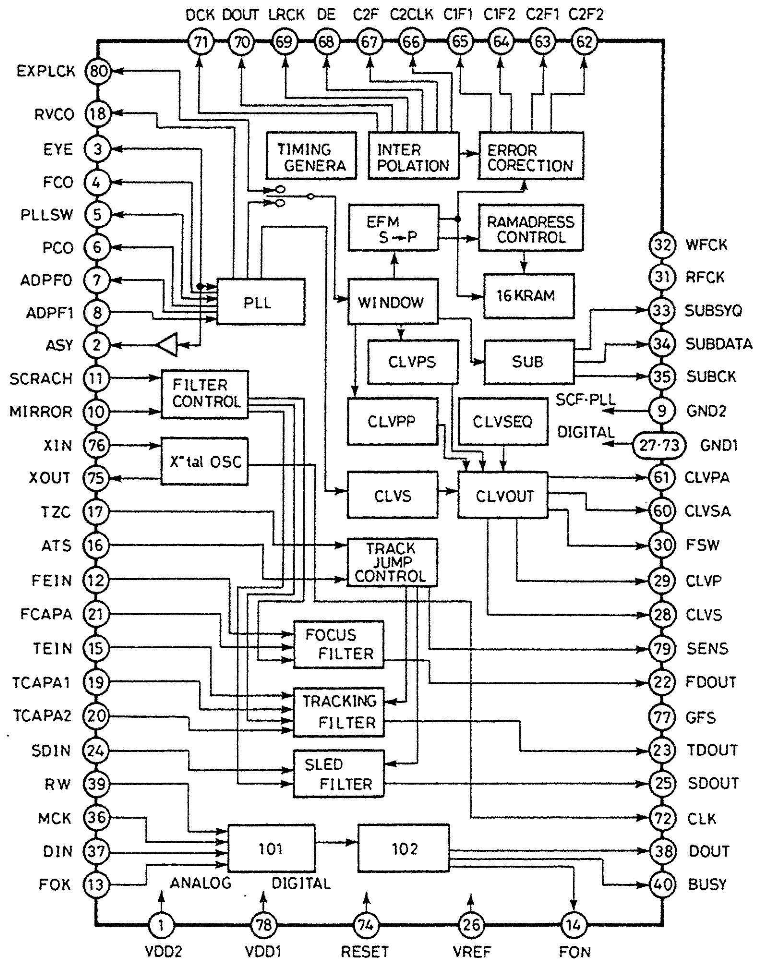
NO.	COM.0	COM.1	COM.2	COM.3
1	COM0			
2		COM1		
3			COM2	
4				COM3
5	6a	6b	6c	6d
6	INTRO	6f	6g	6e
7	5a	5b	5c	5d
8	:	5f	5g	5e
9	4a	4b	4c	4d
10	RANDOM	4f	4g	4e
11	3a	3b	3c	3d
12	3h	3f	3g	3e
13	2a	2b	2c	2d
14	C	2f	2g	2e
15	1a	1b	1c	1d
16	FULL	1f	1g	1e
17	1	ALL	⊂⊃	M
18	▬	┳	⌊⌋	▭



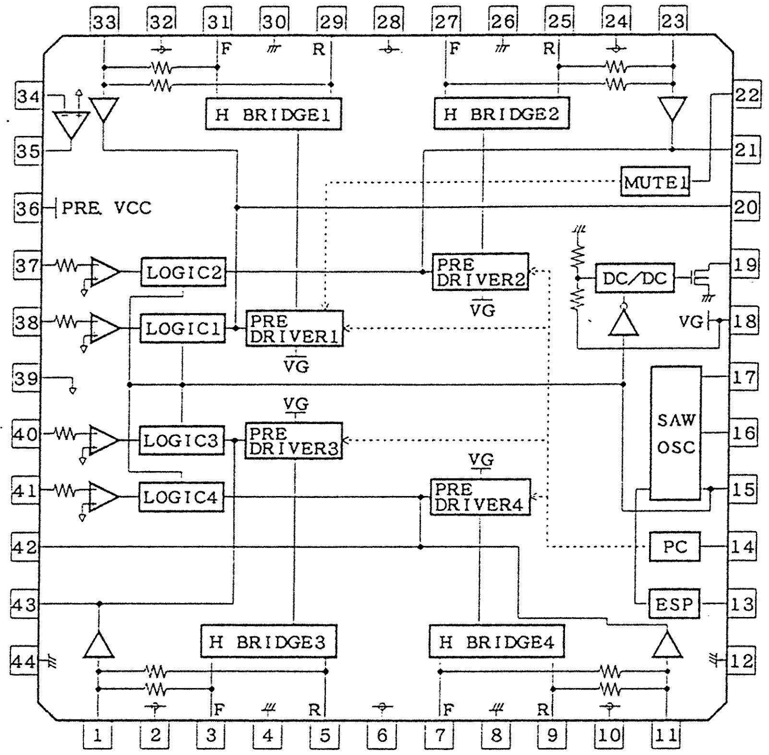
AC/BATT.
POWER ON/OFF
μCOM (+B)
Q1422
SWITCHING
Q1502
SWITCHING
Q1421
REGULATOR
Q1431
REGULATOR
IC142
REGULATOR
IC143
DC/DC
CONVERTER
EXT. POWER
DC 6V
BATTERY
DC 3V
D1941

IC BLOCK DIAGRAM & DESCRIPTION

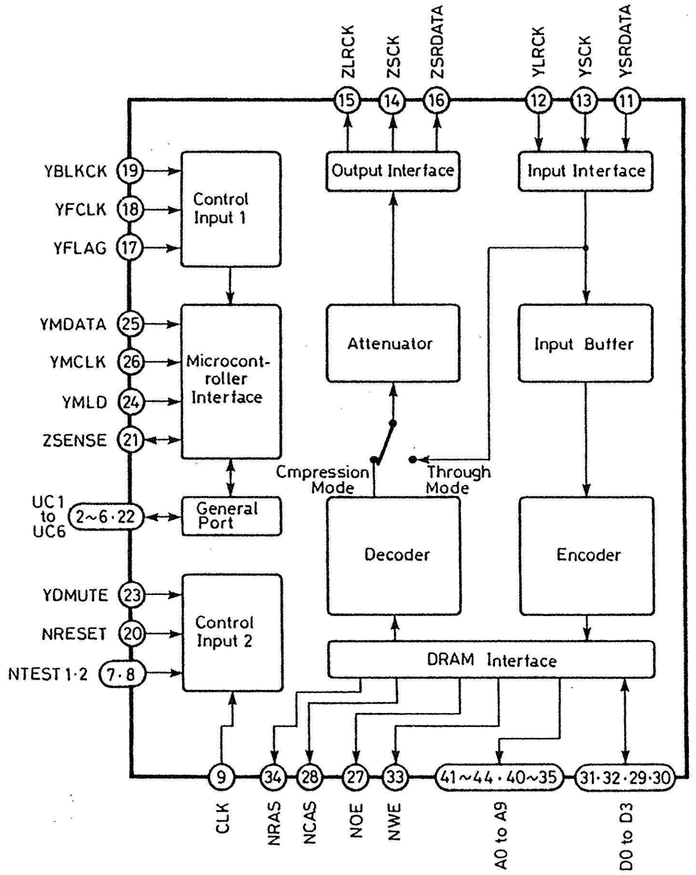
IC145 BU9317KS (SERVO SIGNAL PROCESSOR)


DCK DOUT LRCK DE C2F C2CLK C1F1 C1F2 C2F1 C2F2
EXPLCK
RVCO
EYE
FCO
PLLSW
PCO
ADPFO
ADPF1
ASY
SCRACH
MIRROR
XIN
XOUT
TZC
ATS
FEIN
FCAPA
TEIN
TCAPA1
TCAPA2
SDIN
RW
MCK
DIN
FOK
TIMING GENERA
INTER POLATION
ERROR CORECTION
EFM S→P
RAMADRESS CONTROL
16KRAM
PLL
WINDOW
CLVPS
SUB
FILTER CONTROL
CLVPP
CLVSEQ
SCF·PLL
DIGITAL
X'tal OSC
CLVS
CLVOUT
TRACK JUMP CONTROL
FOCUS FILTER
TRACKING FILTER
SLED FILTER
101
102
ANALOG
DIGITAL
WFCK
RFCK
SUBSYQ
SUBDATA
SUBCK
GND2
GND1
CLVPA
CLVSA
FSW
CLVP
CLVS
SENS
FDOUT
GFS
TDOUT
SDOUT
CLK
DOUT
BUSY
VDD2
VDD1
RESET
VREF
FON

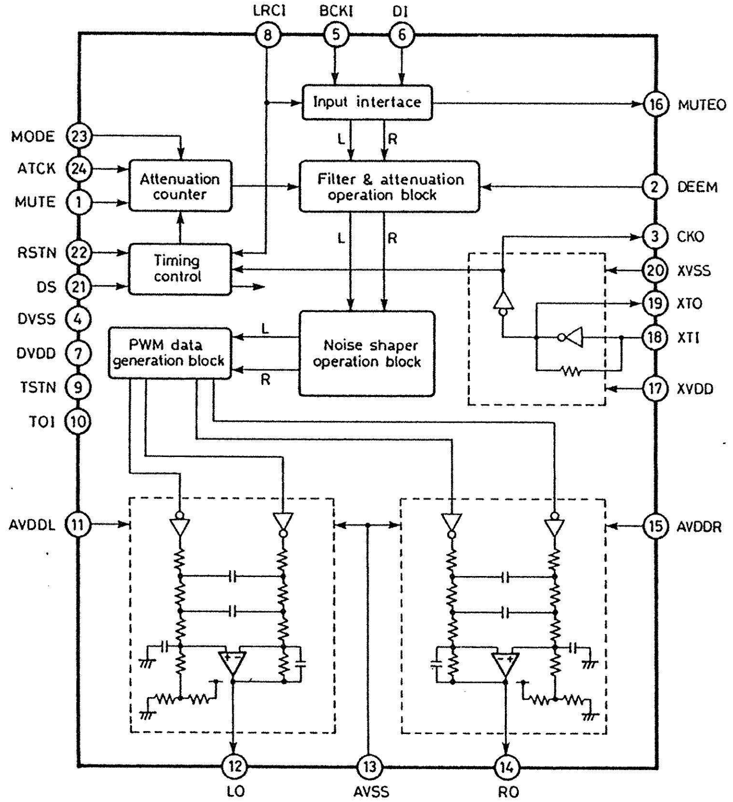
IC141 BH6504K (POWER DRIVER)


H BRIDGE1
H BRIDGE2
H BRIDGE3
H BRIDGE4
MUTE1
PRE VCC
LOGIC1
LOGIC2
LOGIC3
LOGIC4
PRE DRIVER1
PRE DRIVER2
PRE DRIVER3
PRE DRIVER4
VG
DC/DC
SAW OSC
PC
ESP
F
R

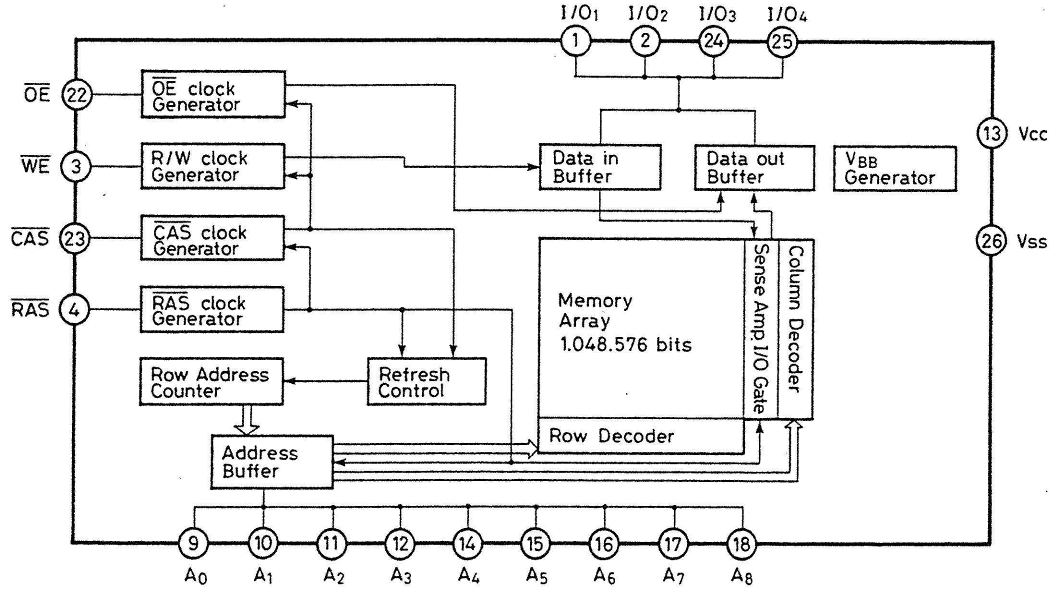
IC146 SM5856A1F
(ANTI-SHOCK MEMORY CONTROL)


ZLRCK
ZSCK
ZSRDATA
YLRCK
YSCK
YSRDATA
YBLKCK
YFCLK
YFLAG
YMDATA
YMCLK
YMLD
ZSENSE
UC1 to UC6
YDMUTE
NRESET
NTEST 1·2
Control Input 1
Output Interface
Input Interface
Microcontroller Interface
Attenuator
Input Buffer
Cmpression Mode
Through Mode
General Port
Decoder
Encoder
Control Input 2
DRAM Interface
CLK
NRAS
NCAS
NOE
NWE
A0 to A9
D0 to D3

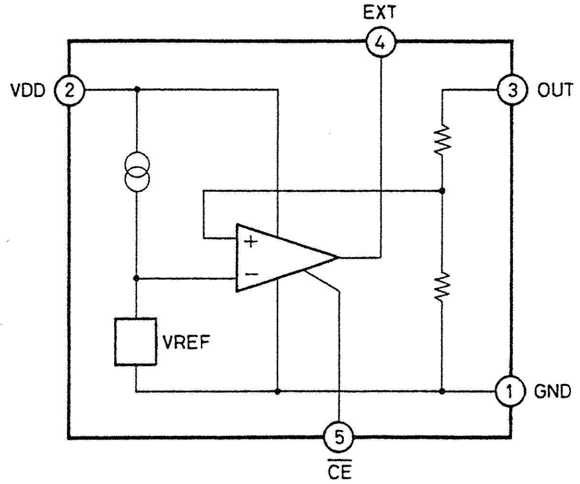
IC191 SM5877AM (D/A CONVERTER)


LRCI
BCKI
DI
MODE
ATCK
MUTE
RSTN
DS
DVSS
DVDD
TSTN
TOI
AVDDL
Input interface
Attenuation counter
Filter & attenuation operation block
Timing control
PWM data generation block
Noise shaper operation block
L
R
MUTEO
DEEM
CKO
XVSS
XTO
XTI
XVDD
AVDDR
LO
AVSS
RO

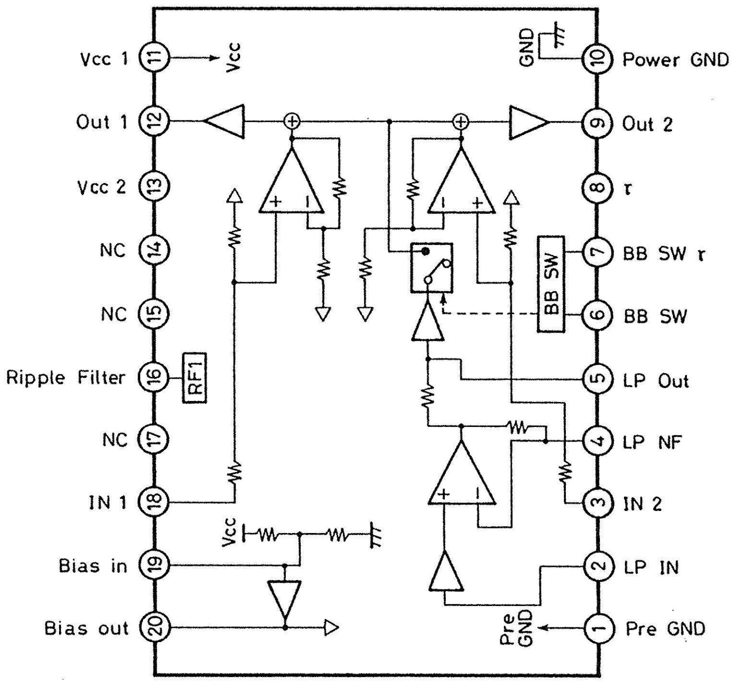
IC147 MSM51V4256A (DYNAMIC RAM)


I/O1
I/O2
I/O3
I/O4
OE
WE
CAS
RAS
OE clock Generator
R/W clock Generator
CAS clock Generator
RAS clock Generator
Row Address Counter
Refresh Control
Address Buffer
Data in Buffer
Data out Buffer
VBB Generator
Memory Array 1.048.576 bits
Row Decoder
Sense Amp I/O Gate
Column Decoder
Vcc
Vss
A0
A1
A2
A3
A4
A5
A6
A7
A8

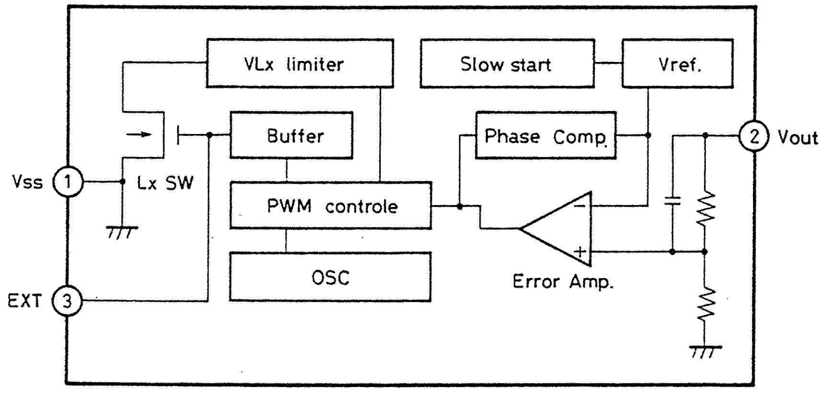
IC142 RN5RG33A (REGULATOR)

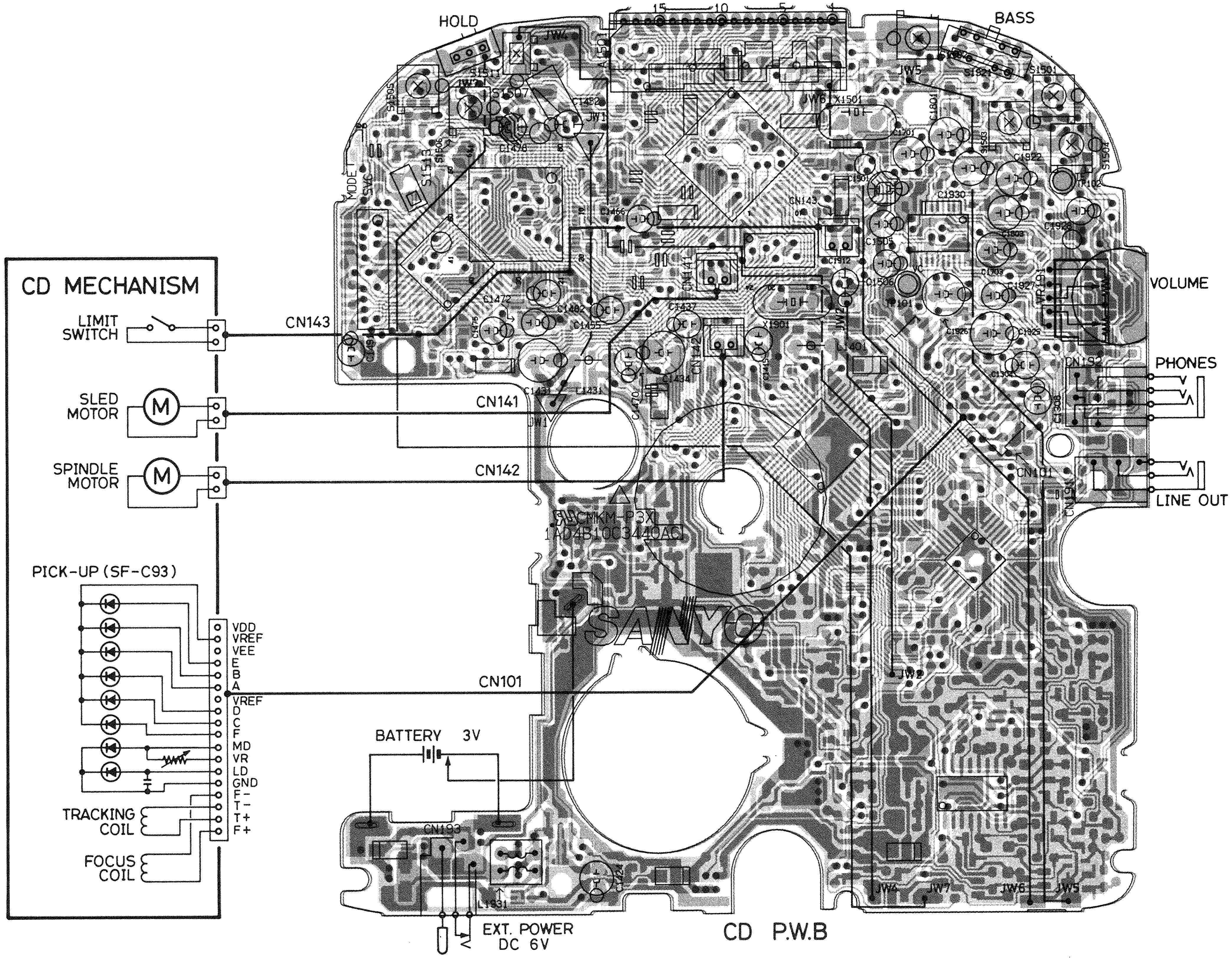

EXT
VDD
OUT
VREF
GND
CE

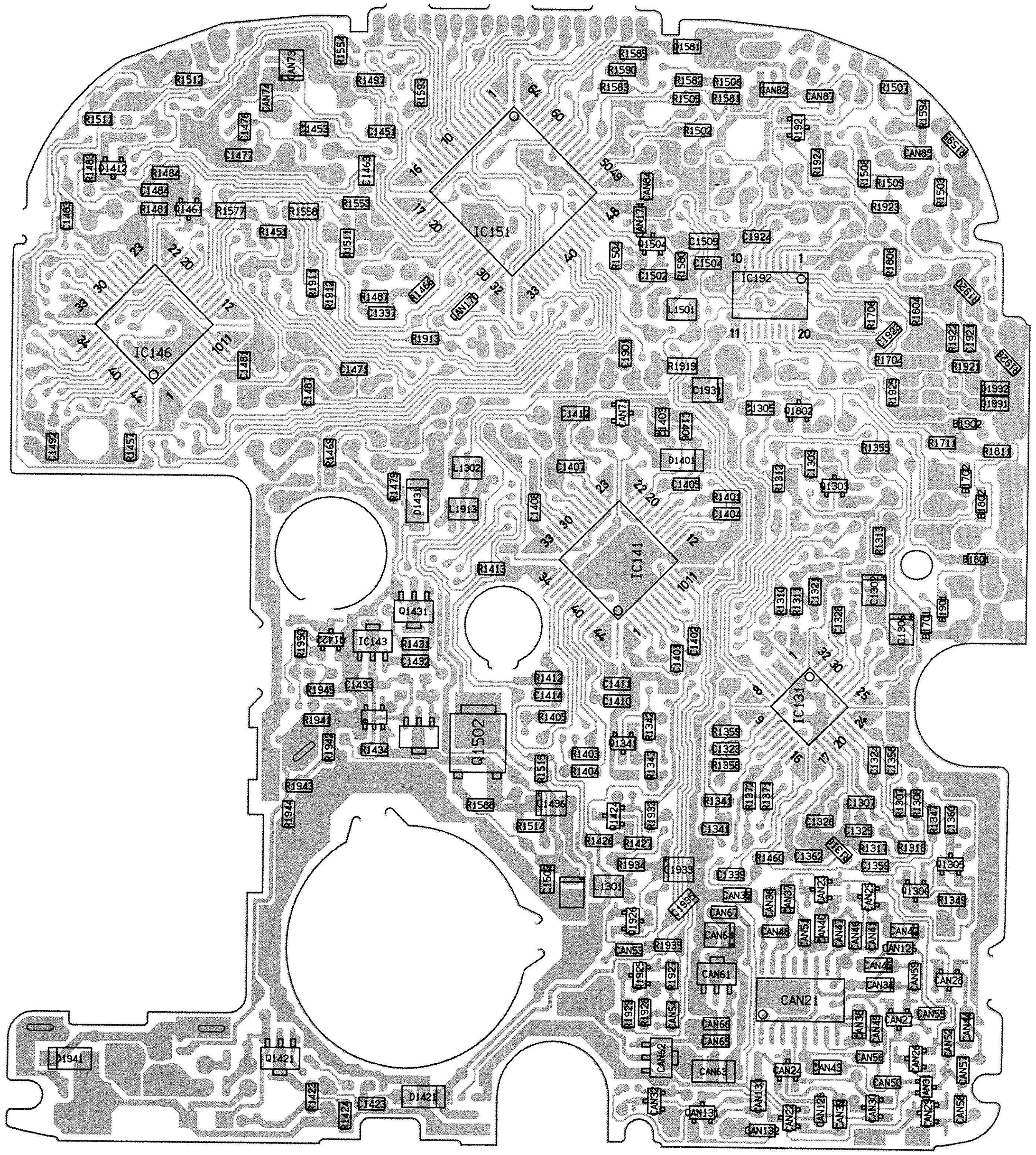
IC192 BA3571FS (PHONES AMP.)


Vcc 1
Out 1
Vcc 2
NC
NC
Ripple Filter
NC
IN 1
Bias in
Bias out
Vcc
GND
RF1
BB SW
Power GND
Out 2
τ
BB SW τ
BB SW
LP Out
LP NF
IN 2
LP IN
Pre GND

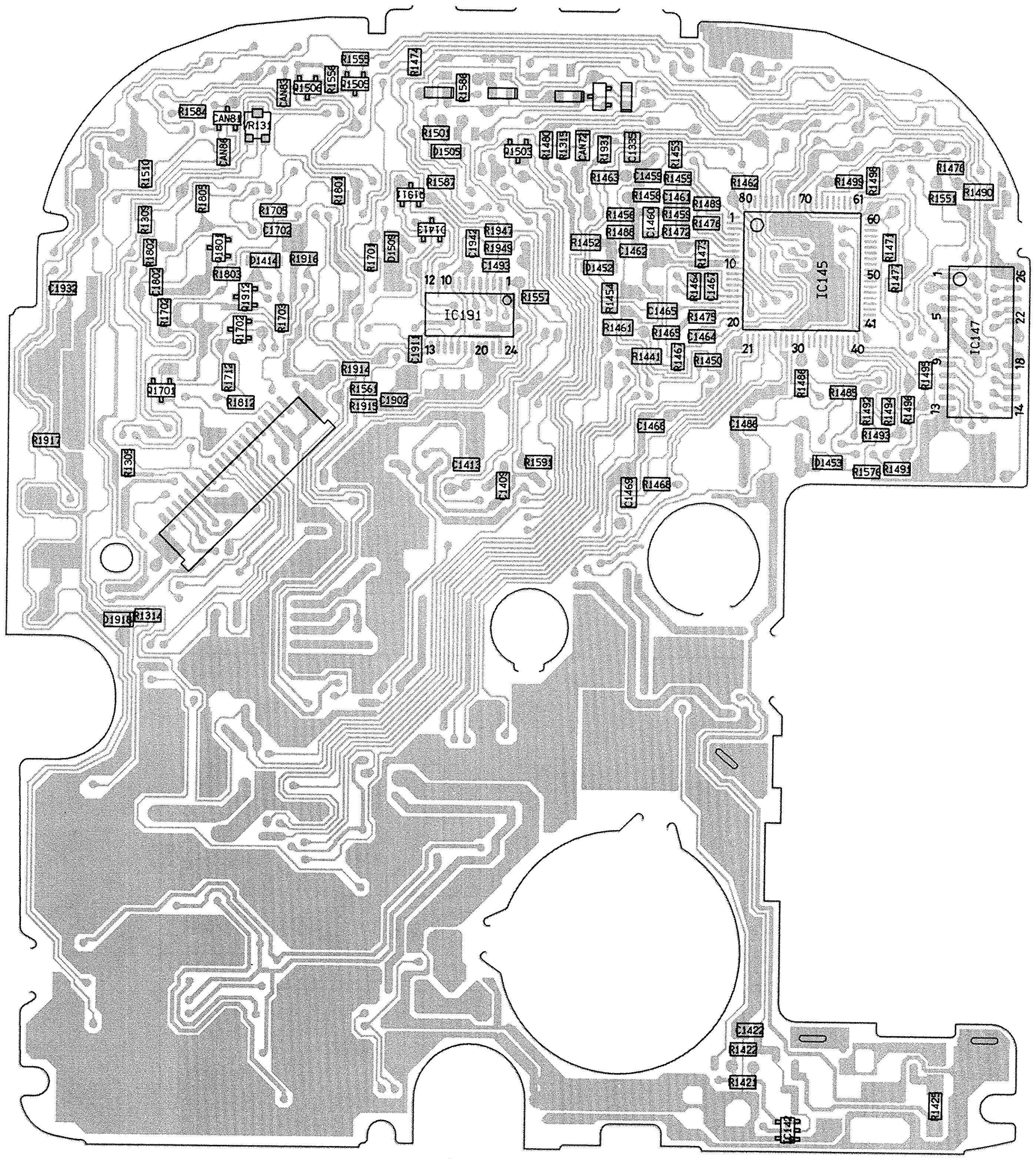
IC143
RH5RH332B
(DC/DC CONVERTER)


VLx limiter
Slow start
Vref.
Buffer
Phase Comp
PWM controle
OSC
Error Amp.
Lx SW
Vss
EXT
Vout


HOLD
BASS
VOLUME
PHONES
LINE OUT
CD MECHANISM
LIMIT SWITCH
SLED MOTOR
SPINDLE MOTOR
PICK-UP (SF-C93)
VDD
VREF
VEE
E
B
A
VREF
D
C
F
MD
VR
LD
GND
F−
T−
T+
F+
TRACKING COIL
FOCUS COIL
CN143
CN141
CN142
CN101
BATTERY 3V
EXT. POWER DC 6V
CD P.W.B
SANYO


IC151
IC146
IC192
IC141
IC143
IC131
Q1431
Q1502
Q1421
D1941
D1421
L1301
L1302
L1913
L1501
CAN21
CAN61

(BOTTOM)


IC145
IC191
IC147

(TOP)

IC131 BA6376K (PRE-SERVO AMP.)

No.	Name	Description
1	E	E input
2	F	F input
3	AGND	Analog GND
4	DGND	Digital GND
5	FI	F gain adjustment feedback terminal
6	LD	APC amplifier output terminal
7	PD	APC amplifier input terminal
8	R/H	C mounting terminal for Lamp wave / Loop off
9	SC	R mounting terminal for depth adjustment of scratch
10	TE	Tracking error output terminal
11	FON	Focus ON control terminal
12	FOK	Focus OK comparator output terminal
13	FE	Focus error output terminal 1
14	DEFECT	Defect signal output terminal
15	MIRR	Mirror signal output terminal
16	EFM	EFM signal output terminal
17	ASY	Auto asymmetry control input terminal
18	DETGND	Detector GND
19	BLH	C mounting terminal for bottom long
20	PLH	C mounting terminal for peak long
21	VCC	Power supply
22	RFI	RF output capacity coupling input terminal
23	RFO	RF summing amplifier output terminal
24	RF-	RF summing amplifier feedback input terminal
25	A	A input
26	B	B input
27	D	D input
28	C	C input
29	FEB	Focus error bias input terminal
30	VB	Bias amplifier output terminal
31	FE'	Focus error output terminal 2
32	EI	E gain adjustment feedback terminal

IC141 BH6504K (POWER DRIVER)

No.	Name	Description
1	CO3	CH3 voltage feedback filter terminal
2	BATT3	Power input
3	OUT 3F	CH3(+) output
4	POWGND	Power GND
5	OUT 3R	CH3(-) output
6	BATT34	Power input
7	OUT 4F	CH4(+) output
8	POWGND	Power GND
9	OUT 4R	CH4(-) output
10	BATT4	Power input
11	CO4	CH4 voltage feedback filter terminal
12	D.GND	GND of Pre driver output
13	ESP	Double speed detection circuit
14	PC	Mute terminal of all driver output
15	CT	Saw tooth wave form output terminal
16	RT	Charge current set up terminal
17	CLK	External clock synchronization input terminal
18	VG	Power supply input of Pre drive circuit
19	LG	DC / DC converter external connection
20	CN1	CH1 phase compensating filter terminal
21	CN2	CH2 phase compensating filter terminal
22	CH1MUTE	CH1 mute terminal
23	CO2	CH2 voltage feedback filter terminal
24	BATT2	Power input
25	OUT 2R	CH2(-) output
26	POEGND	Power GND
27	OUT 2F	CH2(+) output
28	BATT12	Power input
29	OUT 1R	CH(-) output
30	POWGND	Power GND
31	OUT 1F	Ch1(+) output
32	BATT1	Power input
33	CO1	CH1 voltage feedback filter terminal
34	OP-	Operational amplifier (-) input
35	OP- OUT	Operational amplifier output
36	Pre Vcc	Power supply input of control circuit
37	ERR2	CH2 control signal input terminal
38	ERR1	CH1 contol signal input terminal
39	VC	Reference voltage input terminal
40	ERR3	CH3 control signal input terminal
41	ERR4	CH4 control signal input terminal
42	CN4	CH4 phase compensating filter terminal
43	CN3	CH3 phase compensating filter terminal
44	Pre GND	GND of control circuit

IC145 BU9317KS (SERVO-SIGNAL PROCESSOR)

No.	Name	I/O	Description
1	VDD2	-	Power supply (+) for PLL · Servo filter block
2	ASY	O	EFM signal slice level control
3	EYE	I	EFM signal input from RF amplifier
4	FCO	O	PLL frequency compare error voltage output
5	PLLSW	O	PLL constant time select
6	PCO	O	PLL phase compare error voltage output
7	ADPFO	O	PLL addition amplifier output
8	ADPFI	I	PLL addition amplifier inversion input
9	GND2	-	Power suplly (ground) for PLL · Servo filter block
10	MIRROR	I	Mirror signal input
11	SCRACH	I	Scrach signal input
12	FEIN	I	Focus error signal input
13	FOK	I	Focus OK signal input
14	FON	O	Focus ON signal output
15	TEIN	I	Tracking error signal input
16	ATS	I	Window comparator input for anti-shock detection
17	TZC	I	Tracking zero-cross comparator input
18	RVCO	O	PLL · VCO free-running resistor
19	TCAPA1	I/O	Connection terminal of capacitor for tracking servo filter
20	TCAPA2	I/O	Connection terminal of capacitor for tracking servo filter
21	FCAPA	I/O	Connection terminal of capacitor for focus servo filter
22	FDOUT	O	Focus drive output
23	TDOUT	O	Tracking drive output
24	SDIN	I	Sled amplifier input
25	SDOUT	O	Sled drive output
26	VREF	I	Bias voltage input
27	GND1	-	Digital ground terminal
28	CLVS	O	Spindle motor drive output, Speed contorl output
29	CLVP	O	Spindle motor drive output, Rough control or phase control output
30	FSW	O	Spindle motor output, Filter constant time select
31	RFCK	O	Read frame clock output (7.35kHz X'tal)
32	WFCK	O	Write frame clock output (Locked X'tal root time=7.35kHz)
33	SUBSYQ	O	Sub code sync S0+S1 output
34	SUBDATA	O	Serial output of sub code
35	SUBCK	I	Clock for read-out sub code
36	MCK	I	Clock for read-in serial data from CPU or read-out sub-Q code
37	SIN	I	Serial data input from CPU
38	DOUT	O	Sub-Q code or inner status serial signal output
39	RW	I	Read/Write selection terminal, or executable command input of tracking jump (H=data output from DOUT, L=data input from DIN)
40	BUSY	O	Busy output (Track jump=L)
41	NC		No connection
42	NC		No connection
43	NC		No connection
44	NC		No connection
45	NC		No connection
46	NC		No connection
47	NC		No connection
48	NC		No connection
49	NC		No connection
50	NC		No connection
51	NC		No connection
52	NC		No connection
53	NC		No connection
54	NC		No connection
55	NC		No connection
56	NC		No connection
57	NC		No connection
58	NC		No connection
59	NC		No connection
60	CLVPA	O	Linear output of CLV phase
61	CLVSA	O	Linear output of CLV speed
62	C2F2	O	C22 correction flag
63	C2F1	O	C21 correction flag
64	C1F2	O	C12 correction flag
65	C1F1	O	C11 correction flag
66	C2CLK	O	Strobe signal (f=176.4kHz)
67	C2F	O	Correction status output
68	DE	O	Strobe signal (f=88.2kHz)
69	LRCK	O	Strobe signal (f=44.1kHz)
70	DOUTA	O	Audio data output (2'SCOMP)
71	DOCK	O	Bit clock for DOUTA (f=2.1168MHz)
72	CLK	O	Clock output (4-kind selectable at &hE command)
73	GND1	-	Ground
74	RESET	I	System reset
75	XOUT	O	X'tal oscillation output (f=16.9MHz)
76	XIN	I	X'tal oscillation input (f=16.9MHz)
77	GFS	O	GFS monitor output (4-kind selectable at &hE command)
78	VDD1	-	Power supply for digital circuit
79	SENS	O	Output terminal for specified signal state by &hE command
80	EXPLCK	I/O	PLL output or clock input for playback (External PLL used)

IC146 SM5856A1F (ANTI-SHOCK MEMORY CONTROL)

No.	Name	I/O	Description
1	VDD	-	Power supply
2	UC1	I/O	Micro controller interface expansion
3	UC2	I/O	Micro controller interface expansion
4	UC3	I/O	Micro controller interface expansion
5	UC4	I/O	Micro controller interface expansion
6	UC5	I/O	Micro controller interface expansion
7	NTEST1	I	Test terminal
8	NTEST2	I	Test terminal
9	CLK	I	16.9344MHz clock input
10	VSS	-	Ground
11	YSRDATA	I	Audio serial input data
12	YLRCK	I	Audio serial input LR clock
13	YSCK	I	Audio serial input bit clock
14	ZSCK	O	Audio serial output bit clock
15	ZLRCK	O	Audio serial output LR clock
16	ZSRDATA	O	Audio serial output data
17	YFLAG	I	RAM overflow flag of signal process IC
18	YFCLK	I	Crystal frame clock
19	YBLKCK	I	Sub code block clock signal
20	NRESET	I	Reset
21	ZSENSE	I	Micro controller interface status output
22	UC6	I/O	Micro controller interface expansion
23	YDMUTE	I	Forced mute terminal
24	YMLD	I	Micro controller interface lacth clock
25	YMDATA	I	Micro controller interface serial data
26	YMCLK	I	Micro controller interface shift clock
27	NOE (NCAS2)	O	DRAM OE control (DRAM=1) DRAM2 CAS control (DRAM=2)
28	NCAS	O	DRAM CAS control
29	D2	I/O	DRAM data
30	D3	I/O	DRAM data
31	D0	I/O	DRAM data
32	D1	I/O	DRAM data
33	NWE	O	DRAM WE control
34	NRAS	O	DRAM RAS control
35	A9	O	DRAM address
36	A8	O	DRAM address
37	A7	O	DRAM address
38	A6	O	DRAM address
39	A5	O	DRAM address
40	A4	O	DRAM address
41	A0	O	DRAM address
42	A1	O	DRAM address
43	A2	O	DRAM address
44	A3	O	DRAM address

IC151 BU34381 (MICROPROCESSOR)

No.	Name	I/O	Description
1	SEG0	O	LCD segment data
2	SEG1	O	LCD segment data
3	SEG2	O	LCD segment data
4	SEG3	O	LCD segment data
5	SEG4	O	LCD segment data
6	SEG5	O	LCD segment data
7	SEG6	O	LCD segment data
8	SEG7	O	LCD segment data
9	SEG8	O	LCD segment data
10	SEG9	O	LCD segment data
11	SEG10	O	LCD segment data
12	SEG11	O	LCD segment data
13	SEG12	O	LCD segment data
14	SEG13	O	LCD segment data
15	SEG14	O	LCD segment data
16	SEG15	O	LCD segment data
17	P-CON	O	Power control (ON=H)
18	XRESET	O	DSP, ESP reset (Reset=L)
19	RW	O	Connect DSP
20	YMLD	O	ESP latch clock
21	ZSENS	I	ESP status input
22	YMDAT	O	ESP control data
23	YMCLK	O	ESP data clock
24	DB/DS	O	Connect sound DSP
25	MOD2	O	Connect sound DSP
26	MOD1	O	Connect sound DSP
27	OPT	O	Connect sound DSP
28	C2FEN	O	DSP error detect flag control output
29	AMUTE	O	Audio mute (Mute=L)
30	EMPH	O	Emphasis control (Emphasis ON=H)
31	MMUTE	O	Driver mute (Mute=H)
32	IR	I	Wireless remote control input
33	FOK	I	Connect DSP, BA6376K
34	GFS	I	Connect DSP
35	LED1	O	LED1 (Light up=H)
36	LED2	O	LED2 (Light up=H)
37	LIGHT	O	Back light (Light up=H)
38	2SPD	O	Double speed=H
39	SUB-Q	I	Connect DSP (DOUT)
40	COMMAND	O	Connect DSP (DIN)
41	MCK	O	Connect DSP (MCK)
42	SUBSYQ	I	Connect DSP
43	BUSY	I	Connect DSP
44	HOLD	I	Hold switch (Hold=L)
45	SLID	I	Lid open detect switch (Open=H)
46	WAKE-UP	I	Detect of stop mode cancel
47	RESET	I	Reset (Reset=L)
48	GND	-	Ground
49	OSC1	I	Connect clock oscillation crystal (4.19MHz)
50	OSC2	O	Connect clock oscillation crystal (4.20MHz)
51	VDD	-	VDD
52	KEY0	I	Key input
53	KEY1	I	Key input
54	INNER	I	Inside limit detect (Inside=L)
55	SETSEL	I	Set change select
56	RESUME	I	Resume switch (Resume=L)
57	VCHK	I	Detect of reference voltage
58	AC/BATT	I	Power battery (AC adaptor=L)
59	CHRG-V	I	Battery charge voltage detect
60	TEST	I	Test input
61	COM0	O	LCD common output
62	COM1	O	LCD common output
63	COM2	O	LCD common output
64	COM3	O	LCD common output

IC191 SM5877AM (D/A CONVERTER)

No.	Name	I/O	Description
1	MUTE	I	Mode=H : Soft mute ON/OFF terminal (H=Mute) Mode=L : Attenuator level Down/Up terminal (H=Down)
2	DEEM	I	De-emphasis ON/OFF control (H=De-emphasis ON)
3	CKO	O	Clock output, generated by the crystal oscillator (16.9344MHz)
4	DVSS	-	VSS terminal of digital section
5	BCKI	I	Input data of bit clock
6	DI	I	Input data
7	DVDD	-	VDD terminal of digital section
8	LRCI	I	Input data of sample rate clock (H=L-ch, L=R-ch)
9	TSTN	I	No connection
10	TO1	O	No connection
11	AVDDL	-	VDD terminal of analog section (L-ch)
12	LO	O	Output terminal of analog section (L-ch)
13	AVSS	-	VSS terminal of analog section
14	RO	O	Output termial of analog section (R-ch)
15	AVDDR	-	VDD terminal of analog section (R-ch)
16	MUTEO	O	Infinity-zero detection output
17	XVDD	-	VDD terminal of crystal
18	XTI	I	Clock input, generated by the crystal oscillator (16.9344MHz)
19	XTO	O	Crystal oscillator terminal
20	XVSS	-	Ground of crystal
21	DS	I	Play mode select of the normal or high speed (DS=L : Normal, DS=H : High speed)
22	RSTN	I	System reset (H=Normal, L=System reset)
23	MODE	I	Soft mute / attenuator mode select (H=Soft mute)
24	ATCK	I	Set up clock of attenuation level (Mode=H : Ignore)

Jun./'96/3000 KM Printed in Japan.

SANYO Electric Co., Ltd.
Osaka, Japan